

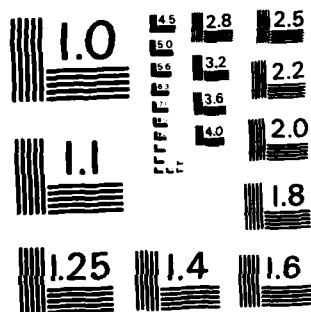
AD-A127 597 ANNUAL REPORT ON AWARDS (1982) GRADUATE AND  
POSTDOCTORAL FELLOWSHIPS POST. (U) NATIONAL RESEARCH  
COUNCIL WASHINGTON DC JUL 82 AFOSR-TR-83-0282

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)  Each year the National Research Council (NRC) conducts a Resident Research Associateship Program (RRAP) for the Air Force Systems Command (AFSC). For the past several years approximately 20 NRC people have participated each year. The objectives of the program are:  (1) to provide postdoctoral scientists and engineers of unusual promise and ability opportunities for research on problems, largely of their choice which are compatible with the research interests of the sponsoring laboratories (over)		

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→ (2) to contribute thereby to the overall research effort of the participating AFSC laboratories

Currently nine AFSC laboratories participate in the program. Appointments to selected applicants are for a period of one year and are renewable for a second year. The program is intended to be analogous to fellowships, associateships and similar temporary programs at the doctorate level in universities and other organizations.

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# 1982 Annual Report on Awards

Graduate and Postdoctoral Fellowships  
Postdoctoral Research Associateships

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# Introduction

## Activities of the Office of Scientific and Engineering Personnel

The Office of Scientific and Engineering Personnel, a part of the National Research Council, is concerned with the more effective development and utilization of the nation's supply of scientists and engineers. The office conducts fellowship and research associateship programs, gathers and maintains data concerning highly qualified personnel, conducts studies of education and training of scientific and engineering personnel, and serves the entire NRC in matters having to do with the status of scientific and engineering personnel and current and projected employment demand and personnel supply.

Both the Office and its predecessors, the Commission on Human Resources and the Office of Scientific Personnel, have a long tradition of service to advanced education in the administration of fellowships and associateships, going back to the mid-1940's. The National Research Council's tradition is even longer: the first National Research Fellowships were awarded in 1919. Identifying unusually able individuals, providing national recognition of their abilities, and assisting them in gaining further education or research experience are among the most important of the Office's tasks. Included in these activities are evaluative and administrative services for the National Science Foundation Graduate Fellowship and Minority Graduate Fellowship Programs, and for the Postdoctoral Fellowships for Minorities sponsored by the Ford Foundation, and administrative services for the International Atomic Energy Agency Fellowship Program, all conducted by the Fellowship Programs unit. The Associateship Programs unit administers Postdoctoral Research Associateship programs in eighteen federal research organizations.

Support programs for graduate education are a continuing need. America's research establishment is a national resource based on its graduate education system.

Our society's ability to respond to changing social needs, both culturally and technologically, depends upon the maintenance of the talent pool in the intellectual, scientific, and human-service areas. The market for highly trained manpower is national. Knowledge, especially basic knowledge, is part of the public domain, requiring wide diffusion and application in the national interest.

One of the few federal programs in existence today is the National Science Foundation Graduate Fellowship Program, a national competitive program in which selection is based entirely on merit or quality, as evaluated by panels of distinguished scientists and engineers appointed by the National Research Council. Only a very small percentage of the graduate student population is supported under the NSF Graduate Fellowship Program. However, those receiving awards are among the most able graduate students in the country. Some of their achievements were highlighted in the publication *Career Achievements of NSF Graduate Fellows: The Awardees of 1952-1972*, the result of a study undertaken by members of the NRC research staff. The good record of achievement of former Fellows reported there and elsewhere makes it especially important that the continuity of this program be maintained. Worthy of note in the history of the past year was the possibility — fortunately, not a reality — that the program might be suspended in FY 1982.

The first national competition for Minority Graduate Fellowships administered by the National Research Council was held in FY 1979. It followed a small experimental program which was initiated by the National Science Foundation in FY 1978. The Minority Graduate Fellowships are designed to be one means of increasing the number of practicing scientists who are members of ethnic minority groups traditionally underrepresented in the advanced levels of the nation's science talent pool.

The Office has a continuing interest in gaining greater understanding of the evaluation process and from time to time conducts studies to this end. As mentioned

above, follow-up studies are made to monitor the progress of award recipients. At the same time, selection criteria are evaluated periodically to ensure that the awards are made carefully and equitably to the most able students. The NRC holds conferences periodically to discuss selection procedures, to plan new selection-research projects, and to recommend new criteria under which awardees may be selected. Studies are also conducted to detect any bias in the selection process, particularly bias that might affect women and minorities.

The training of young postdoctoral fellows also provides the human-resource pool with well trained people available to work on problems of national interest at advanced levels of research. To be the recipient of a postdoctoral award is a customary way for a young doctoral-degree holder to break into the job market, particularly into academia. The awards not only sharpen research skills, but allow field-switching to occur as new research opportunities emerge. Like the Graduate Program, the NSF Postdoctoral Fellowships in Science Program until FY 1982 was a relatively small program, but one which helped to strengthen the science base of the nation. The awardees in this program were either new doctorate holders or persons who had held the doctorate for no more than five years. Regrettably, the Postdoctoral Fellowships in Science Program was discontinued in FY 1982, leaving a large gap in the nation's prestigious, merit-based, portable fellowship programs.

In 1979, the Fellowship Office undertook administrative and evaluative services for the Postdoctoral Fellowships for Minorities Program sponsored by the Ford Foundation for an initial period of two years. The program was so successful in meeting its objectives that it is being continued. The program identifies persons of high ability who are members of minority groups that have been traditionally underrepresented among the nation's behavioral and social scientists, scholars in the humanities, engineers, mathematicians, physical scientists, and life scientists, and makes it possible for them to engage in postdoctoral research and scholarship free from interference from their normal duties. In 1980, the National Endowment for the Humanities provided support through this program for several additional awards in humanities fields. In sponsoring the program, the Ford Foundation wishes to help young teacher-scholars engaged in college or university teaching and research to achieve greater recognition in their respective fields, and to acquire the professional associations that will make them more effective and productive in academic employment. In addition, the sponsors seek to identify and support outstanding senior teacher-scholars, providing them with an opportunity for professional enrichment and research.

The International Atomic Energy Agency Fellowship Program is also administered by the Office. Under this program, persons working for an atomic or nuclear agency in a developing country may apply for a fellowship to the IAEA headquarters in Vienna, Austria. The selection procedure is carried out in Vienna, and the NRC is asked to place in appropriate institutions those individuals who wish to receive training in the United States. The fellowships are awarded on an individual basis and are available to qualified applicants at all educational levels, not restricted to university graduates. They provide training related to the peaceful application of nuclear energy in whatever form is most relative to the applicant's needs in serving in the home country's nuclear energy programs. This might be laboratory experience, formal academic course work, directed research, shop apprenticeship, engineering practice, or a combination of several types of training.

The Office also administers the Postdoctoral Research Associateship Programs, under which associates receive temporary research appointments at eighteen federal research organizations. The objectives of the program are (1) to provide postdoctoral scientists and engineers of unusual promise and ability opportunities for research on problems, largely of their own choice, that are compatible with research interests of the sponsoring laboratories; and (2) to contribute thereby to the overall research effort of the federal laboratories. These programs are analogous to fellowship, associateship, and similar programs at the postdoctoral level in universities and other organizations. They are not intended to be, nor do they compete with, permanent professional career positions. They provide opportunities for concentrated research, in association with selected members of the professional laboratory staff, without many of the regular duties and distracting assignments of career positions. As a related benefit, the programs also make available to the broader scientific and engineering communities the excellent, and sometimes unique, research facilities which exist in government laboratories.

This report contains brief program descriptions, statistical data about activities in these programs in Fiscal Year 1982, and comparable data for earlier years where appropriate. Most importantly, it contains the names of the members of the selection panels on whose hard work, judgment, and painstaking attention to details the success of the whole enterprise depends. In naming them, the Office wishes to express its great indebtedness to them and their institutions for these valuable services. Also, the Office acknowledges with thanks the effective assistance and cooperation of members of the staff of the National Science Foundation, the Ford Foundation, the Department of Energy and the Department of State, and the many agencies supporting Postdoctoral Associateship Programs. The names of agency program representatives and NRC staff are listed on the following pages.

# Acknowledgments

The following is a list of Program Representatives for the agencies supporting fellowship and associateship programs. The Fellowship Programs and Associateship Programs Staffs who work with these Program Representatives are also listed. The contributions of these persons are essential to the successful operation of the programs and are gratefully acknowledged.

## Fellowship Programs

### Program Representatives

#### National Science Foundation (NSF):

Terence L. Porter, Head, Fellowships Section, Office of Scientific and Engineering Personnel (from March 21, 1982)  
Douglas S. Chapin, Program Director, Graduate Fellowships Program (from March 21, 1982)  
Thomas S. Quarles, Program Director, Graduate and Postdoctoral Programs (to March 21, 1982)

#### Ford Foundation:

Gladys C. Hardy, Director, Division of Education and Culture  
Sheila Biddle, Division of Education and Culture

#### International Atomic Energy Agency (IAEA):

S.B. Hammond, Head, Fellowships and Training Section, IAEA  
William M. Porter, Office of International Affairs, Department of Energy

## Staff

### Frank D. Hansing, Director of Fellowships

Edgar F. Seagle, Assistant Director of Fellowships

Beverly J. Kuhn, Staff Officer (Supervisor)

Nancy C. Long, Staff Officer (Program)

Faith F. Ferguson, Program Coordinator, IAEA Fellowship Program  
Christine O'Brien, Program Coordinator, Postdoctoral Fellowships for Minorities supported by the Ford Foundation

Joan R. Sagransky, Program Coordinator, NSF Graduate Fellowships Program  
Aloha G. Hanley, Program Coordinator, NSF Minority Graduate Fellowship Program

Shelley L. Henderson, Program Coordinator, Data Processing

## Associateship Programs

### Program Representatives at the Federal Laboratories (1982)

#### National Aeronautics and Space Administration:

Headquarters: Charles Carter, University Affairs Office  
Ames Research Center: David Peake  
Jeanette Remington

Dryden Flight Research Center: Harold P. Washington  
Goddard Space Flight Center: George F. Pieper  
Jerry Hodge

Goddard Institute for Space Studies: Roger Dilling  
Jet Propulsion Laboratory: Harry Ashkenas  
Carol Snyder

Johnson Space Center: Edward C. Ezell  
Langley Research Center: Jane Swartzwelder  
Robert H. Tolson

Lewis Research Center: Robert P. Allen  
Marshall Space Flight Center: Marion Kent  
Wallops Flight Center: Philip T. Ryan  
Headquarters Research Management Associateship program:  
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Malinda Johnson, Office of Space Science

Air Force Systems Command:  
Headquarters: Donald L. Ball  
Richard Kopka

Aerospace Medical Division: Thomas D.N. Douthit  
Air Force Aero Propulsion Laboratory: Merrill L. Cole

Air Force Avionics Laboratory: Jesse C. Ryles

Air Force Geophysics Laboratory: A. Stair

Air Force Materials Laboratory: Norman Tallan  
Air Force Rocket Propulsion Laboratory: Richard Weiss

Air Force Weapons Laboratory: Arthur Guenther

Frank J. Seiler Research Laboratory: William D. Siuru

Armed Forces Radiobiology Research Institute:  
Bobby R. Adcock  
George N. Catravas

Atmospheric Sciences Laboratory: Franklin E. Niles

Environmental Protection Agency:

Headquarters: Alan Neuschatz  
Patricia Cox  
Athens Environmental Research Laboratory: David W. Duttweiler  
Corvallis Environmental Research Laboratory: James C. McCarty  
Narragansett Environmental Research Laboratory: Richard Latimer

Research Triangle Park Research Laboratories: Norman Childs  
National Bureau of Standards: Robb Thomson  
National Institute for Occupational Safety and Health:  
Kenneth C. Weber  
National Oceanic and Atmospheric Administration: William D. Kleis  
Linda Batlin  
Naval Air Development Center: John J. DeLucia  
Naval Medical Research and Development Command:  
Headquarters: James F. Kelly  
Naval Medical Research Institute: Lutz A. Kiesow  
Naval Ocean Research and Development Activity:  
Herbert C. Eppert, Jr.  
Naval Postgraduate School: William M. Tolles  
Naval Research Laboratory: Alan Berman  
David A. Patterson  
Agda Cohen  
Naval Weapons Center: Arnold T. Nielsen

U.S. Army Armament Research and Development Command:  
Ballistic Research Laboratory: R. J. Eichelberger  
Lawrence J. Puckett  
Chemical Systems Laboratory: Thomas J. Welch  
U.S. Army Natick Research and Development Command:  
Hamed M. El-Bisi  
U.S. Geological Survey: Mitchell W. Reynolds  
Walter Reed Army Institute of Research: Howard E. Noyes  
U.S. Army Medical Research Institute of Infectious Diseases:  
William B. Beisel

**Staff:**

J. Chester McKee, Director of Associateships  
Roland W. Kinney, Associate Director of Associateships  
Harold W. Lucien, Associate Director of Associateships  
Robert H. Manka, Assistant Director of Associateships  
F. Argyle Crump, Assistant to the Director  
Jane Dell'Amore, Administrative Supervisor  
Daniel T. McHugh, Fiscal Officer

# I National Science Foundation Graduate Fellowship Program

## The Program

National Science Foundation Graduate Fellowships are awarded for study or work leading to master's or doctoral degrees in the mathematical, physical, biological, engineering, and social sciences, and in the history and philosophy of science. Awards are not made in clinical, law, education, or business fields, in history or social work, for work leading to medical, dental, or public health degrees, or for study in joint science-professional degree programs. In recent years, NSF has awarded approximately 450-500 new three-year Graduate Fellowships each year.

The Graduate Fellowship Program is open only to applicants who are citizens or nationals of the United States as of the time of application. The three-year awards offered are intended for students at or near the beginning of their graduate study. No student is eligible for more than three years of NSF Graduate Fellowship support.

Graduate Fellowships are awarded on the basis of ability, in accordance with Section 10 of the National Science Foundation Act of 1950, as amended. The evaluation of applicants is based on all available evidence of ability, including academic records, recommendations regarding each applicant's qualifications, and scores attained in the Graduate Record Examinations (GRE).

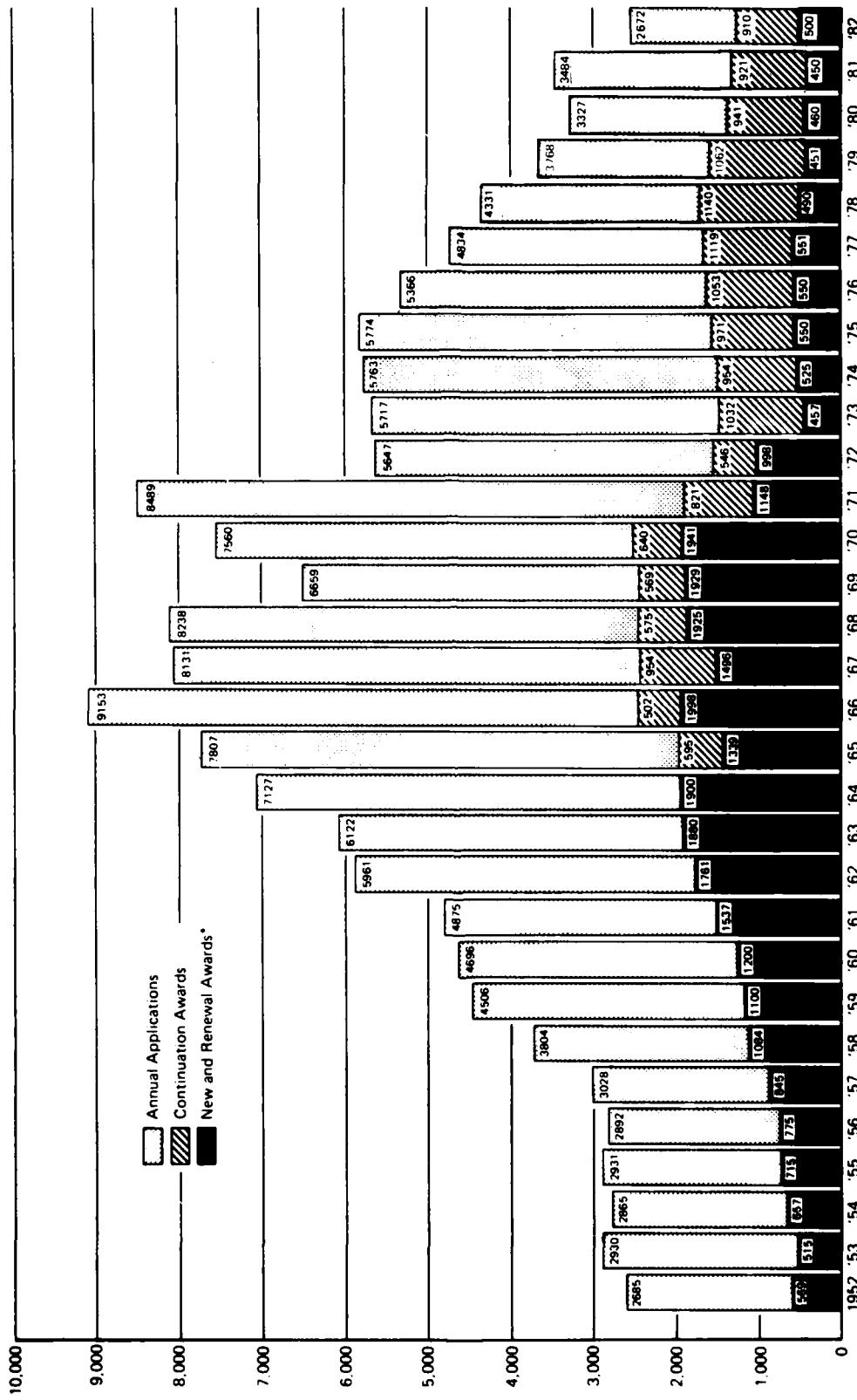
The review of each applicant's qualifications is carried out by panels of scientists appointed by the National Research Council, which assists the National Science Foundation in the evaluation of applicants. In the final decisions on applications to be supported, selection is made in merit order, except that in the case of applications of substantially equal merit (as determined by the merit review process), use may be made of other criteria such as geographical or disciplinary distribution of funds,

distribution of awards among appropriate types of institutions, or others determined to be consistent with Foundation policy and legislative intent.

As in previous Reports, Figure 1 on page 7 illustrates the cumulative annual numbers of applicants and awards in the National Science Foundation Graduate Fellowship Program from its inception in 1952 to the present. In each column, the number of applicants is shown above, in stipple; new or renewal awards made to these applicants are shown in black; from 1965 on, continuation awards, made without formal application to previous-year awardees, are shown in hatching. Table 1 contains information concerning the participation of women in the NSF Graduate Fellowship Program. It lists the number and percentage of women applicants and awardees by field for five-year periods from 1968 through 1982.

The announcement for the 1982 NSF Graduate Fellowship Program competition was not made until the first week of November which was two months later than the usual announcement time. This was due to the delay in the 1982 federal budget process which resulted in very late approval to go ahead with the 1982 competition. This two-month delay in publicizing the program probably contributed to the lower number of applicants in this year's competition. This number was the lowest in the thirty-year history of the program.

In the 1982 NSF Graduate Fellowship Program, the total applications numbered 2672 (Table 2). New awards were offered to 500, or about 19 per cent. About 34 per cent of the applications were from women, and about 31 per cent of the awards were made to women. Persons from all states applied for fellowships, and awards were made to individuals from 46 different states, and the District of Columbia (Table 3). The recipients of the awards may choose the institution they wish to attend. Table 4 lists the institutions selected in descending order.



\*Prior to 1973 black represents New and Renewal Awards combined beginning with 1973 black represents only New Awards. (Renewal Awards were made on the basis of NRC recommendations. Commencement Awards are made upon certification of satisfactory progress by the fellowship institution.)

FIGURE 1 NSF Graduate Fellowship Program Applications and Awards, 1952-1982.

TABLE 1 NSF Graduate Fellowship Program, Number and Percentage of Women Applicants and Awards Offered to Women by Field, by Five-Year Periods, 1968-1982

Field & Years	No. of Women Applicants	Total Applicants	No. of Awards to Women	Total Awards	% Women Applicants	% Awards to Women
<b>EMP FIELDS</b>						
Applied Mathematics <sup>1</sup>						
1968 - 1972	369	1,891	26	349	19.5	7.4
1973 - 1977	397	1,712	26	164	23.2	15.9
1978 - 1982	271	1,161	29	163	23.3	17.8
Total	1,037	4,764	81	676	21.8	12.0
Astronomy						
1968 - 1972	47	395	5	98	11.9	5.1
1973 - 1977	29	256	0	21	11.3	0
1978 - 1982	11	128	1	21	8.6	4.8
Total	87	779	6	140	11.2	4.3
Chemistry						
1968 - 1972	635	3,901	79	986	16.3	8.0
1973 - 1977	443	2,024	32	198	21.9	16.2
1978 - 1982	414	1,573	42	206	26.3	20.4
Total	1,492	7,498	153	1,390	19.9	11.0
Earth Sciences <sup>2</sup>						
1968 - 1972	191	1,486	20	291	12.9	6.9
1973 - 1977	346	1,380	28	142	25.1	19.7
1978 - 1982	286	881	35	126	32.5	27.8
Total	823	3,747	83	559	22.0	14.8
Engineering <sup>3</sup>						
1968 - 1972	90	4,644	16	966	1.9	1.7
1973 - 1977	202	3,457	24	330	5.8	7.3
1978 - 1982	368	2,423	43	346	15.2	12.4
Total	660	10,524	83	1,642	6.3	5.1
Mathematics						
1968 - 1972	931	4,195	80	1,103	22.2	7.3
1973 - 1977	344	1,525	5	142	22.6	3.5
1978 - 1982	120	665	12	87	18.0	13.8
Total	1,395	6,385	97	1,332	21.8	7.3
Physics <sup>4</sup>						
1968 - 1972	201	3,839	23	965	5.2	2.4
1973 - 1977	130	1,955	10	188	6.6	5.3
1978 - 1982	137	1,360	13	170	10.1	7.6
Total	468	7,154	46	1,323	6.5	3.5
<b>TOTAL EMP FIELDS</b>	<b>5,962</b>	<b>40,851</b>	<b>549</b>	<b>7,062</b>	<b>14.6</b>	<b>7.8</b>
<b>LIFE &amp; MEDICAL SCIENCES</b>						
Biochemistry, Biophysics, Molecular Biology						
1968 - 1972	531	1,772	97	507	30.0	19.1
1973 - 1977	577	1,864	48	172	31.0	27.9
1978 - 1982	493	1,306	49	172	37.7	28.5
Total	1,601	4,942	194	851	32.4	22.8
Biological Sciences A <sup>5</sup>						
1968 - 1972	518	2,078	100	382	24.9	26.2
1973 - 1977	677	1,935	78	211	35.0	37.0
1978 - 1982	549	1,470	80	194	37.3	41.2
Total	1,744	5,483	258	787	31.8	32.8
Biological Sciences B <sup>6</sup>						
1968 - 1972	907	2,013	184	460	45.1	40.0
1973 - 1977	831	1,886	73	176	44.1	41.5
1978 - 1982	616	1,269	80	164	48.5	48.8
Total	2,354	5,168	337	800	45.5	42.1
Biomedical Sciences <sup>7</sup>						
1968 - 1972	574	1,315	74	191	43.7	38.7
1973 - 1977	978	2,091	106	202	46.8	52.5
1978 - 1982	755	1,482	104	195	50.9	53.3
Total	2,307	4,868	284	588	47.2	48.3
<b>TOTAL LIFE AND MEDICAL SCIENCES</b>	<b>8,006</b>	<b>20,481</b>	<b>1,073</b>	<b>3,026</b>	<b>39.1</b>	<b>35.5</b>
<b>BEHAVIORAL &amp; SOCIAL SCIENCES</b>						
Behavioral & Social Sciences A						
(Psychology)						
1968 - 1972	998	2,300	168	451	43.4	37.3
1973 - 1977	1,042	2,197	83	211	47.4	39.3
1978 - 1982	618	1,097	85	144	56.3	59.0
Total	2,698	5,594	336	806	47.5	41.7
Behavioral & Social Sciences B <sup>8</sup>						
(Anthropology & Sociology)						
1968 - 1972	1,296	2,755	191	492	47.0	38.8
1973 - 1977	1,235	2,406	100	233	51.3	42.9
1978 - 1982	681	1,229	82	165	55.4	49.7
Total	3,212	6,390	373	890	50.3	41.9
Behavioral & Social Sciences C <sup>9</sup>						
(History & Philosophy of Science, International Relations, Political Science, Urban & Regional Planning, Social Sciences-other)						
1968 - 1972	873	4,009	121	705	21.8	17.2
1973 - 1977	868	2,753	66	242	31.5	27.3
1978 - 1982	488	1,538	51	198	31.7	25.8
Total	2,229	8,300	238	1,145	26.9	20.8
<b>TOTAL BEHAVIORAL &amp; SOCIAL SCIENCES</b>	<b>8,099</b>	<b>20,284</b>	<b>947</b>	<b>2,841</b>	<b>39.9</b>	<b>33.3</b>
<b>TOTAL ALL FIELDS</b>	<b>22,067</b>	<b>81,616</b>	<b>2,569</b>	<b>12,929</b>	<b>27.0</b>	<b>19.9</b>

<sup>1</sup>Includes Computer Science, Operations Research, and Statistics

<sup>2</sup>Includes Atmospheric Sciences

<sup>3</sup>Includes Metallurgy

<sup>4</sup>Includes Physical Sciences-other

<sup>5</sup>Includes Agriculture, Agronomy, Biological Oceanography, Botany, Ecology, Entomology, Environmental Sciences, Fish & Wildlife, Forestry, Horticulture, Phytopathology, and Soil Science

<sup>6</sup>Includes Biology, Cellular Biology, Genetics, Zoology, Life Sciences-other

<sup>7</sup>Includes Anatomy, Microbiology, Nutrition & Metabolism, Pathology, Pharmacology, Physiology, Veterinary Science, Medical Sciences-other

<sup>8</sup>Includes Archaeology, Linguistics, Social Sciences-other

<sup>9</sup>Includes Economics, Environmental Sciences (Social), Geography (other than physical), History & Philosophy of Science, International Relations, Political Science, Urban & Regional Planning, Social Sciences-other

**TABLE 2 NSF Graduate Fellowship Program FY 1982, Number of Applicants, Awards Offered, Continuations, and Honorable Mentions by Field of Study and by Sex**

	Number of Applicants			Number of Awards Offered						Honorable Mention		
	New		N-Female	Continuation			N+C Total	Male	Female	Total		
	Male	Female		N-Male	N-Female	C-Male						
<b>EMP SCIENCES</b>												
Applied Mathematics <sup>1</sup>	143	42	185	34	8	42	56	8	64	106	51	6
Astronomy	21	1	22	2	1	3	11	11	14	3	3	3
Chemistry	170	70	240	29	11	40	65	18	83	123	75	26
Earth Sciences <sup>2</sup>	97	44	141	24	10	34	27	16	43	77	17	4
Engineering <sup>3</sup>	324	64	388	83	11	94	98	16	114	208	75	12
Mathematics	80	19	99	15	2	17	24	5	29	46	23	2
Physics <sup>4</sup>	184	27	211	32	3	35	57	3	60	95	50	2
<b>Subtotal</b>	<b>1019</b>	<b>267</b>	<b>1286</b>	<b>219</b>	<b>46</b>	<b>265</b>	<b>338</b>	<b>66</b>	<b>404</b>	<b>669</b>	<b>294</b>	<b>52</b>
<b>LIFE AND MEDICAL SCIENCES</b>												
Biochemistry, Biophysics, and Molecular Biology	141	82	223	22	15	37	46	15	61	98	48	14
Biological Sciences-A <sup>5</sup>	131	80	211	23	13	36	49	40	89	125	37	20
Biological Sciences-B <sup>6</sup>	86	102	188	13	19	32	33	37	70	102	27	19
Biomedical Sciences <sup>7</sup>	104	116	220	18	19	37	35	40	75	112	30	20
<b>Subtotal</b>	<b>462</b>	<b>380</b>	<b>842</b>	<b>76</b>	<b>66</b>	<b>142</b>	<b>163</b>	<b>132</b>	<b>295</b>	<b>437</b>	<b>142</b>	<b>73</b>
<b>BEHAVIORAL AND SOCIAL SCIENCES</b>												
Anthropology and Sociology <sup>8</sup>	76	101	177	14	16	30	37	35	72	102	29	22
Psychology	65	88	153	11	16	27	24	33	57	84	28	39
Social Sciences <sup>9</sup>	143	71	214	25	11	36	58	24	82	118	44	9
<b>Subtotal</b>	<b>284</b>	<b>260</b>	<b>544</b>	<b>50</b>	<b>43</b>	<b>93</b>	<b>119</b>	<b>92</b>	<b>211</b>	<b>304</b>	<b>101</b>	<b>70</b>
<b>Total</b>	<b>1765</b>	<b>907</b>	<b>2672</b>	<b>345</b>	<b>155</b>	<b>500</b>	<b>620</b>	<b>290</b>	<b>910</b>	<b>1410</b>	<b>537</b>	<b>195</b>

<sup>1</sup>Includes Computer Science, Operations Research, and Statistics

<sup>2</sup>Includes Atmospheric Sciences

<sup>3</sup>Includes Metallurgy

<sup>4</sup>Includes Physical Sciences-other

<sup>5</sup>Includes Agriculture, Agronomy, Biological Oceanography, Botany, Ecology, Entomology, Environmental Sciences, Fish & Wildlife, Forestry, Horticulture, Phytopathology, and Soil Science

<sup>6</sup>Includes Biology, Cellular Biology, Genetics, Zoology, Life Sciences-other

<sup>7</sup>Includes Anatomy, Microbiology, Nutrition & Metabolism, Pathology, Pharmacology, Physiology, Veterinary Science

<sup>8</sup>Includes Archaeology, Linguistics, Social Sciences-other

<sup>9</sup>Includes Economics, Environmental Sciences (Social), Geography (other than physical), History & Philosophy of Science, International Relations, Political Science, Urban & Regional Planning, Social Sciences-other

**TABLE 3 NSF Graduate Fellowship Program FY 1982, Number of Applicants and Awards by State of Permanent Residence and by Sex**

State	Number of Applicants			Number of Awards Offered		
	Male	Female	Total	Male	Female	Total
Alabama	7	2	9	1		1
Alaska	4	2	6	1		1
Arizona	16	5	21	7		7
Arkansas	4	1	5	2		2
California	255	140	395	43	30	73
Colorado	36	16	52	5	2	7
Connecticut	41	16	57	7	2	9
Delaware	6	10	16	1	1	2
District of Columbia	14	6	20	3		3
Florida	36	21	57	5	1	6
Georgia	21	17	38	4	1	5
Hawaii	6	4	10	1	2	3
Idaho	3	4	7		2	2
Illinois	101	34	135	21	10	31
Indiana	39	13	52	10	3	13
Iowa	15	7	22	7	1	8
Kansas	19	2	21	4		4
Kentucky	13	8	21	4	2	6
Louisiana	16	11	27	2		2
Maine	10	3	13	3		3
Maryland	39	28	67	9	4	13
Massachusetts	91	46	137	12	7	19
Michigan	65	27	92	18	6	24
Minnesota	27	20	47	9	3	12
Mississippi	4	3	7			
Missouri	28	10	38	9	1	10
Montana	7	2	9	2		2
Nebraska	10	3	13	1		1
Nevada	4	1	5			
New Hampshire	5	4	9		1	1
New Jersey	96	46	142	16	8	24
New Mexico	5	3	8	1		1
New York	227	126	353	41	17	58
North Carolina	49	25	74	11	4	15
North Dakota	1	1	2			
Ohio	70	40	110	16	6	22
Oklahoma	18	5	23	2		2
Oregon	16	7	23	5	1	6
Pennsylvania	115	55	170	21	12	33
Puerto Rico	5	5	10			
Rhode Island	6	3	9	2		2
South Carolina	17	5	22	3		3
South Dakota	3	4	7	1		1
Tennessee	15	11	26	5	3	8
Texas	44	20	64	6	3	9
Utah	12	3	15	3	1	4
Vermont	6		6			
Virginia	42	27	69	8	6	14
Washington	41	27	68	5	8	13
West Virginia	4	4	8		1	1
Wisconsin	28	22	50	7	6	13
Wyoming	3	2	5	1		1
<b>Total</b>	<b>1765</b>	<b>907</b>	<b>2672</b>	<b>345</b>	<b>155</b>	<b>500</b>

**TABLE 4 NSF Graduate Fellowship Program FY 1982, Number of Awardees by Institution Selected for Fellowship Tenure**

Institution	Number of Awardees	Institution	Number of Awardees
<b><i>United States Institutions</i></b>			
Massachusetts Institute of Technology	89	Indiana University	1
Stanford University	57	University of Kansas	1
University of California, Berkeley	43	University of Maine	1
Harvard University	43	University of Maryland	1
Cornell University	24	University of Maryland School of Medicine	1
Princeton University	18	University of Minnesota, Mayo Graduate School of Medicine	1
University of Wisconsin, Madison	17	University of Missouri, Rolla	1
California Institute of Technology	14	University of Nebraska, Lincoln	1
University of Michigan	14	New York University	1
University of Minnesota, Minneapolis	12	University of Notre Dame	1
Duke University	11	University of Oklahoma	1
University of Washington	11	Pennsylvania State University	1
Yale University	11	University of Pittsburgh	1
University of Chicago	9	University of Rochester	1
University of California, San Diego	6	University of South Carolina	1
University of Illinois, Urbana-Champaign	6	University of South Dakota	1
Johns Hopkins University	6	State University of New York, Albany	1
Michigan State University	6	Texas Christian University	1
University of Pennsylvania	6	Virginia Polytechnic Institute and State University	1
Columbia University	5	Washington State University	1
University of California, San Francisco	4	Washington University School of Medicine	1
Northwestern University	4	Wayne State University	1
University of Texas, Austin	4	West Virginia University	1
University of Arizona	3	University of Wisconsin, School of Medicine	1
Brown University	3	Yeshiva University, Albert Einstein College of Medicine	1
University of California, Davis	3		
Carnegie-Mellon University	3		
University of Kentucky	3		
University of North Carolina, Chapel Hill	3		
State University of New York, Stony Brook	3		
Brandeis University	2		
University of Colorado, Boulder	2		
Louisiana State University and Agricultural & Mechanical College	2		
University of Massachusetts, Amherst	2		
North Carolina State University	2		
Ohio State University	2		
Oregon State University	2		
University of Utah	2		
Washington University	2		
University of California, Los Angeles	1		
University of California, Santa Barbara	1		
University of Cincinnati	1		
Columbia College of Physicians and Surgeons	1		
Dartmouth College	1		
Florida State University	1		
University of Florida	1		
Georgia Institute of Technology	1		
Hahnemann Medical College	1		
University of Hawaii	1		
University of Houston	1		
University of Illinois, Chicago Circle	1		
<b><i>Foreign Institutions</i></b>			
University of Cambridge			1
Imperial College of Science and Technology			1
School of Oriental and African Studies, University of London			1
University of Toronto			1
Subtotal			4
Total			500
<b>Total Institutions Represented: 80</b>			

The Massachusetts Institute of Technology, Stanford, Harvard and the University of California at Berkeley received the largest number of NSF awardees.

The applications were reviewed by highly qualified panelists who were selected from university faculty, government laboratories, and industries. One hundred and five panelists were appointed by the National Research Council to serve on thirteen panels. The panels included about 24 per cent women and 16 per cent minorities. Figure 2 shows the distribution of panelists by states.

### Panels on National Science Foundation Graduate Fellowships

#### Behavioral and Social Sciences A (Psychology)

**Chairman** Benton J. Underwood, Professor, Department of Psychology, Northwestern University, Evanston, Illinois 60201 (Experimental Psychology)

Robert E. Bowman, Professor, Department of Psychology, University of Wisconsin, Madison, Wisconsin 53706 (Physiological Psychology)

James K. Brewer, Professor and Head, Department of Educational Research, Development and Foundations, Florida State University, Tallahassee, Florida 32306 (Psychometrics)

David H. Crowell, Professor, Department of Psychology, University of Hawaii at Manoa, Honolulu, Hawaii 96822 (Developmental Psychology)

John M. Darley, Professor and Chairman, Department of Psychology, Princeton University, Princeton, New Jersey 08544 (Social Psychology)

Stephen C. Fowler, Acting Chairman and Associate Professor, Department of Psychology, University of Mississippi, University, Mississippi 38677 (Experimental Psychology)

Irwin A. Horowitz, Professor, Department of Psychology, University of Toledo, Toledo, Ohio 43606 (Social Psychology)

Terry Maple, Associate Professor, School of Psychology, Georgia Institute of Technology, Atlanta, Georgia 30332 (Experimental Psychology)

Mary C. Wetzel, Associate Professor, Department of Psychology, University of Arizona, Tucson, Arizona 85721 (Experimental Psychology)

#### Behavioral and Social Sciences B (Anthropology, Archaeology, Linguistics, Sociology)

**Chairman** John J. Ohala, Professor, Department of Linguistics, University of California, Berkeley, California 94720 (Linguistics)

Robert H. Dyson, Jr., Dean, Faculty of Arts and Sciences, University of Pennsylvania, Philadelphia, Pennsylvania 19174 (Archaeology)

Sheila Klatzky, Associate Professor, Department of Sociology and Anthropology, Fordham University, Bronx, New York 10458 (Sociology)

Linda Klepinger, Associate Professor, Department of Anthropology, University of Illinois, Urbana, Illinois 61801 (Physical and Biological Anthropology)

LaVerne Masayesva-Jeanne, Assistant Professor, Department of Linguistics, University of Arizona, Tucson, Arizona 85721 (Linguistics)

Julius Rivera, Professor, Department of Sociology and Anthropology, University of Texas, El Paso, Texas 79968 (Sociology)

Eugenie C. Scott, Assistant Professor, Department of Anthropology, University of Kentucky, Lexington, Kentucky 40506 (Physical Anthropology)

Dean R. Snow, Professor, Department of Anthropology, State University of New York at Albany, Albany, New York 12222 (Archaeology/Ethnohistory)

Edgar V. Winans, Professor, Department of Anthropology, University of Washington, Seattle, Washington 98195 (Anthropology)

#### Behavioral and Social Sciences C (Economics, Geography, History & Philosophy of Science, Political Science, Urban & Regional Planning)

**Chairman** James B. Lindberg, Professor, Department of Geography, University of Iowa, Iowa City, Iowa 52240 (Economic Geography)

Kathleen Brook, Assistant Professor, Department of Economics, New Mexico State University, Las Cruces, New Mexico 88003 (Monetary Theory and Policy)

Vine Deloria, Jr., Professor, Department of Political Science, University of Arizona, Tucson, Arizona 85721 (Political Science)

E. Roger Jones, III, Assistant Professor, Department of Philosophy, University of Tennessee, Knoxville, Tennessee 37916 (History and Philosophy of Science)

Daniel L. McFadden, Professor, Department of Economics, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139 (Economics)

Victor Olorunsola, Professor and Chairman, Department of Political Science, Iowa State University, Ames, Iowa 50011 (Political Science)

David L. Pugh, Head, Department of Urban and Regional Planning, Texas A&M University, College Station, Texas 77843 (Urban and Regional Planning)

Roger F. Riefler, Professor, Department of Economics, University of Nebraska, Lincoln, Nebraska 68588 (Economics)

Carolyn J. Ryan, Associate Professor, Department of Geography, Temple University, Philadelphia, Pennsylvania 19122 (Geography)

#### Biological Sciences A

**Chairman** Richard H. Falk, Associate Professor, Department of Botany, University of California, Davis, California 95616 (Botany)

Mac A. Callahan, Associate Professor, Department of Biology, North Georgia College, Dahlonega, Georgia 30533 (Wildlife Biology/Fisheries)

Donald P. de Sylva, Professor, Division of Biology and Living Resources, University of Miami, Miami, Florida 33149 (Biological Oceanography)

Linda G. Lockwood, Associate Professor, Department of Environmental Sciences, University of Massachusetts, Amherst, Massachusetts 01003 (Environmental Biology)

Jane F. Rissler, Assistant Professor, Department of Botany, University of Maryland, College Park, Maryland 20742 (Plant Pathology)

Anne Spacie, Associate Professor, Department of Forestry and Natural Resources, Purdue University, West Lafayette, Indiana 47907 (Limnology/Pollution Biology)

Michael J. Wade, Associate Professor, Department of Biology, University of Chicago, Chicago, Illinois 60637 (Ecology)

## Biological Sciences B

**Chairman** Judith Weis, Professor, Department of Zoology, Rutgers University, Newark, New Jersey 07102 (Developmental and Marine Biology)  
Richard Crang, Professor of Botany and Director, Center for Electron Microscopy, University of Illinois, Urbana, Illinois 61801 (Cell Biology)  
Emanuel Epstein, Professor, Department of Land, Air and Water Resources, University of California, Davis, California 95616 (Plant Nutrition/Botany)  
Richard Garcia, Associate Entomologist and Lecturer, Division of Biological Control, Agricultural Experiment Station, University of California, Berkeley, California 94706 (Parasitology)  
Thoyd Melton, Associate Professor, Department of Microbiology, North Carolina State University, Raleigh, North Carolina 27650 (Genetics)  
Mary A. Rankin, Associate Professor, Department of Zoology, University of Texas, Austin, Texas 78712 (Zoology)  
Mary E. Rice, Curator, Department of Invertebrate Zoology, National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560 (Invertebrate Zoology)

## Biomedical Sciences

**Chairman** Marilyn E. Hess, Professor, Department of Pharmacology, School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania 19174 (Pharmacology)  
Daniel Acosta, Jr., Associate Professor, College of Pharmacy, University of Texas, Austin, Texas 78712 (Pharmacology)  
David C. Laux, Associate Professor, Department of Microbiology, University of Rhode Island, Kingston, Rhode Island 02881 (Immunology)  
Dan A. Riley, Associate Professor, Department of Anatomy, Medical College of Wisconsin, Milwaukee, Wisconsin 53226 (Anatomy)  
Calvin C. Sampson, Professor, Department of Pathology, College of Medicine, Howard University, Washington, D.C. 20059 (Pathology)  
Dorothy E. Thompson, Associate Professor, Department of Nutrition, Case Western Reserve University, Cleveland, Ohio 44106 (Nutrition)  
Gerard R. Vela, Professor, Department of Biological Sciences, North Texas State University, Denton, Texas 76203 (Bacteriology)  
Ralph S. Wolfe, Professor, Department of Microbiology, University of Illinois, Urbana, Illinois 61801 (Microbiology)

## Biochemistry and Biophysics

**Chairman** William D. Phillips, Professor and Chairman, Department of Chemistry, Washington University, St. Louis, Missouri 63130 (Biophysics)  
Gordon Bailey, Professor, Department of Biochemistry, Morehouse School of Medicine, Atlanta, Georgia 30314 (Biochemistry)  
Joseph J. Higgins, Associate Professor, Department of Biophysics, School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania 19104 (Biology and Molecular Biology)  
Florence Lewis, Associate Professor, Department of Biology, Cheyney State College, Cheyney, Pennsylvania 19319 (Biochemistry)  
Rusty J. Mans, Professor, Department of Biochemistry and Molecular Biology, College of Medicine of University of Florida, Gainesville, Florida 32610 (Biochemistry)  
Ann G. Matthysse, Associate Professor, Department of Botany, University of North Carolina, Chapel Hill, North Carolina 27514 (Molecular Biology)

Nancy Lee Noble, Associate Professor, Department of Biochemistry, School of Medicine, University of Miami, Miami, Florida 33101 (Biochemistry)

Jesse C. Rabinowitz, Professor, Department of Biochemistry, University of California, Berkeley, California 94720 (Biochemistry)

Philip Reyes, Associate Professor, Department of Biochemistry, School of Medicine, University of New Mexico, Albuquerque, New Mexico 87131 (Biochemistry)

## Chemistry

**Chairman** Harris J. Silverstone, Professor, Department of Chemistry, Johns Hopkins University, Baltimore, Maryland 21218 (Theoretical Quantum Chemistry)

Fred Basolo, Morrison Professor of Chemistry, Northwestern University, Evanston, Illinois 60201 (Inorganic Chemistry)

Fitzgerald B. Bramwell, Professor, Department of Chemistry, Brooklyn College, Brooklyn, New York 11210 (Physical Chemistry)

Richard J. Field, Assistant Professor, Department of Chemistry, University of Montana, Missoula, Montana 59812 (Physical Chemistry)

Louis E. Friedrich, Research Laboratories, Eastman Kodak Company, Rochester, New York 14650 (Chemistry)

Susan C. Jackels, Assistant Professor, Department of Chemistry, Wake Forest University, Winston-Salem, North Carolina 27109 (Inorganic Chemistry)

Ronald M. Magid, Professor, Department of Chemistry, University of Tennessee, Knoxville, Tennessee 37996 (Organic Chemistry)

Roy G. Miller, Professor, Department of Chemistry, University of North Dakota, Grand Forks, North Dakota 58202 (Organic Chemistry)

James P. Wightman, Professor, Department of Chemistry, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061 (Physical Chemistry)

## Earth Sciences

**Chairman** Leon E. Long, Professor, Department of Geological Sciences, University of Texas, Austin, Texas 78712 (Geochemistry)

Donald R. Baker, Professor and Chairman, Department of Geology, Rice University, Houston, Texas 77001 (Geology)

Emmy Booy, Assistant Professor, Department of Geology, Colorado School of Mines, Golden, Colorado 80401 (Engineering Geology)

Bruce D. Marsh, Professor, Department of Earth and Planetary Sciences, Johns Hopkins University, Baltimore, Maryland 21218 (Geophysics)

Paul L. Smith, Director, Institute of Atmospheric Sciences, South Dakota School of Mines and Technology, Rapid City, South Dakota 57701 (Atmospheric Sciences)

## Engineering

**Chairman** Robert C. Reid, Chevron Professor of Chemical Engineering, Department of Chemical Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139 (Chemical)

Lee E. Baker, Professor and Director, Biomedical Engineering Program, Biomedical Engineering Laboratory, University of Texas, Austin, Texas 78712 (Biomedical)

Donald M. Bolle, Dean, College of Engineering and Physical Sciences, Lehigh University, Bethlehem, Pennsylvania 18015 (Electrical)

Melvyn C. Branch, Associate Professor, Department of Mechanical Engineering, University of Colorado, Boulder, Colorado 80309 (Mechanical)

**Rion A. Causey**, Assistant Professor, Department of Nuclear Engineering and Engineering Physics, University of Virginia, Charlottesville, Virginia 22901 (Nuclear)

**Blake E. Cherrington**, Professor and Chairman, Department of Electrical Engineering, University of Florida, Gainesville, Florida 32611 (Electrical)

**Maria A. Comninou**, Associate Professor, Department of Civil Engineering, University of Michigan, Ann Arbor, Michigan 48109 (Applied Mechanics/Civil Engineering)

**Jacob M. Geist**, Chief Engineer, Process Systems Group, Air Products and Chemicals, Inc., Box 538, Allentown, Pennsylvania 18105 (Chemical Engineering/Cryogenics)

**Robert J. Heinsohn**, Professor, Department of Mechanical Engineering, Pennsylvania State University, University Park, Pennsylvania 16802 (Mechanical)

**George C. Lee**, Professor, Department of Civil Engineering, State University of New York at Buffalo, Buffalo, New York 14260 (Civil)

**Carlos McDonald**, Associate Professor, Department of Electrical Engineering, University of Texas, El Paso, Texas 79968 (Electrical)

**Thomas Paez**, Assistant Professor, Department of Civil Engineering, University of New Mexico, Albuquerque, New Mexico 87131 (Civil)

**V. Aileen Rogers**, Assistant Professor, Department of Mechanical Engineering, Drexel University, Philadelphia, Pennsylvania 19104 (Biomechanics)

**Theodore J. Williams**, Professor and Director, Laboratory for Applied Industrial Control, Purdue University, West Lafayette, Indiana 47907 (Chemical)

## Mathematics

**Chairman Amassa C. Fauntleroy**, Associate Professor, Department of Mathematics, University of Illinois, Urbana, Illinois 61801 (Algebra)

**Karl F. Barth**, Professor, Department of Mathematics, Syracuse University, Syracuse, New York 13210 (Analysis)

**Raymond Johnson**, Professor, Department of Mathematics, University of Maryland, College Park, Maryland 20742 (Analysis)

**Edith T. Stevenson**, Member of Technical Staff, Bell Laboratories, 11900 N. Pecos Street, Denver, Colorado 80234 (Analysis)

**Howard H. Wicke**, Professor, Department of Mathematics, Ohio University, Athens, Ohio 45701 (Topology)

## Applications of Mathematics

**Chairman B. David Saunders**, Assistant Professor, Department of Mathematical Sciences, Rensselaer Polytechnic Institute, Troy, New York 12180 (Computer Science)

**Herman Chernoff**, Professor, Department of Mathematics, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139 (Applied Math/Statistics)

**Patricia J. Eberlein**, Professor, Department of Computer Science, State University of New York at Buffalo, Buffalo, New York 14226 (Computer Science)

**William F. Lucas**, Professor, Department of Operations Research, Cornell University, Ithaca, New York 14853 (Applied Math)

**David Maier**, Assistant Professor, Department of Computer Science, State University of New York at Stony Brook, Stony Brook, New York 11794 (Computer Science)

**Carl D. Meyer**, Professor, Department of Mathematics, North Carolina State University, Raleigh, North Carolina 27650 (Applied Math/Computer Science)

## Physics and Astronomy

**Chairman Richard D. Koshel**, Professor, Department of Physics, Ohio University, Athens, Ohio 45701 (Nuclear Physics)

**Ronald Bass**, Associate Professor, Department of Physics and Astronomy, University of Kansas, Lawrence, Kansas 66045 (Solid State)

**Edward H. Carlson**, Professor, Department of Physics, Michigan State University, East Lansing, Michigan 48824 (Solid State)

**Arthur D. Code**, Professor, Washburn Observatory, University of Wisconsin, Madison, Wisconsin 53706 (Astronomy)

**H. Mark Nelson**, Professor, Department of Physics, Brigham Young University, Provo, Utah 84602 (Theoretical Physics)

**Philip C. Peters**, Professor, Department of Physics, University of Washington, Seattle, Washington 98195 (Theoretical Physics)

**J. Roger Sheridan**, Professor and Head, Department of Physics, University of Alaska, Fairbanks, Alaska 99701 (Atomic Physics)

**Mildred Widgoff**, Professor, Department of Physics, Brown University, Providence, Rhode Island 02912 (Elementary Particle Physics)

## Final Board

**Richard H. Falk**, **Amassa C. Fauntleroy**, **Marilyn E. Hess**, **Richard D. Koshel**, **James B. Lindberg**, **Leon E. Long**, **John J. Ohala**, **William D. Phillips**, **Robert C. Reid**, **B. David Saunders**, **Harris J. Silverstone**, **Benton J. Underwood**, **Judith Weis**

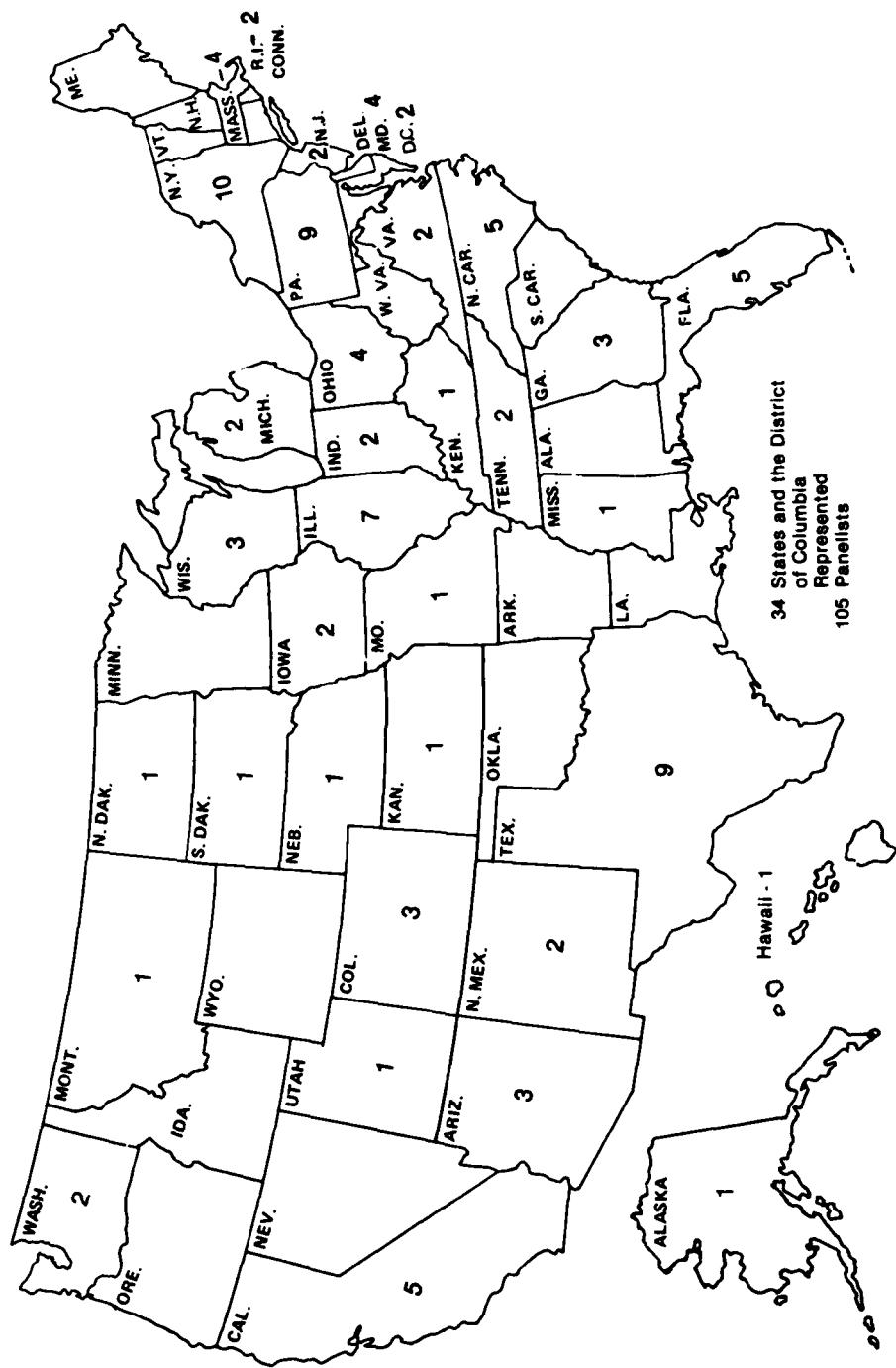


FIGURE 2 NSF Graduate Fellowship Program FY 1982, Distribution of Panelists by State.

## II National Science Foundation Minority Graduate Fellowship Program

### The Program

The fourth national competition for Minority Graduate Fellowships administered by the National Research Council was held in FY 1982. The NRC administration of these competitions was preceded by a small experimental program initiated by the National Science Foundation in FY 1978. The Minority Graduate Fellowships are designed to be one means of increasing the number of practicing scientists who are members of ethnic minority groups traditionally underrepresented in the advanced levels of the Nation's science talent pool. For FY 1982, NSF awarded 55 new three-year Minority Graduate Fellowships and 104 continuations to qualified minority individuals who have demonstrated ability and special aptitude for advanced training in the sciences.

The Minority Graduate Fellowship Program is open only to applicants who are citizens or nationals of the United States as of the time of application, and who are members of an ethnic minority group underrepresented in the advanced levels of the U.S. science personnel pool, i.e., American Indian, Alaskan Native (Eskimo or Aleut), Black, Mexican American/Chicano, Puerto Rican, or Native Pacific Islander (Polynesian or Micronesian).

Applicants in the Minority Graduate Fellowship Program may apply separately in the Graduate Fellowship Program if they meet the eligibility requirements of that program. In both programs, fellowships are awarded for study or work leading to master's or doctoral degrees in the mathematical, physical, biological, engineering, and social sciences, and in the history and philosophy of science. Awards are not made in clinical, education, law, or business fields, in history or social work, for work leading to medical, dental, or public health degrees, or for study in joint science-professional degree programs. The

three-year awards offered are intended for students at or near the beginning of their graduate study. No student is eligible for more than three years of NSF Minority Graduate (or Graduate) Fellowship support.

Minority Graduate Fellowships are awarded on the basis of ability, in accordance with Section 10 of the National Science Foundation Act of 1950, as amended. The evaluation of applicants is based on all available evidence of ability, including academic records, recommendations regarding each applicant's qualifications, and scores attained in the Graduate Record Examinations (GRE).

The review of each applicant's qualifications is carried out by panels of scientists appointed by the National Research Council, which assists the National Science Foundation in the evaluation of applicants. In the final decisions on applications to be supported, selection is made in merit order, except that in the case of applications of substantially equal merit (as determined by the merit review process), use may be made of other criteria such as geographical or disciplinary distribution of funds, distribution of awards among appropriate types of institutions, or others determined to be consistent with Foundation policy and legislative intent.

In the 1982 NSF Minority Graduate Fellowship Program, the total applications numbered 228 (Table 5). New Awards were offered to 55, or approximately 24 percent of the Minority Graduate Fellowship applicants. Ninety-six of the 228 also entered the NSF Graduate Fellowship Program; however, in FY 1982, no NSF Graduate Fellowships were awarded in this applicant group although 31 of this group received Minority Graduate Fellowships. Of the 55 awards, 25 were made to women. The 55 awards were distributed among ethnic groups as follows: American Indians, 2; Blacks, 25; Mexican Americans/Chicanos, 18; Puerto Ricans, 8; and Native Pacific Islanders, 2.

TABLE 5 NSF Minority Graduate Fellowship Program FY 1982, Number of Applicants, Awards Offered, Continuations, and Honorable Mentions by Field of Study and by Sex

	Number of Applicants			New			Number of Awards Offered			Honorable Mention				
	Male		Female	N-Male		N-Female	N-Total	C-Male	C-Female	C-Total	N + C Total	Male	Female	Total
	Male	Female	Total											
<b>EMP SCIENCES</b>														
Applied Mathematics*	3	8	11		1	1	1	2	7	9	10	1	1	1
Astronomy	1		1								1			
Chemistry	6	8	14	3	1	4	9	6	15	19	19	3	3	3
Earth Sciences*	7	4	11	1	1	2	2	2	4	6	6	1	1	1
Engineering*	28	8	36	9	2	11	9	3	12	23	23	6	2	8
Mathematics	2	1	3	2		2	1	1	1	2	4	4	4	4
Physics*	6	1	7	1		1	1	1	1	2	4	4	4	4
<b>Subtotal</b>	<b>53</b>	<b>30</b>	<b>83</b>	<b>17</b>	<b>5</b>	<b>22</b>	<b>24</b>	<b>19</b>	<b>43</b>	<b>65</b>	<b>11</b>	<b>6</b>	<b>17</b>	
<b>LIFE AND MEDICAL SCIENCES</b>														
Biochemistry,														
Biophysics, and Molecular Biology	6	5	11	4		1	5	6	1	7	12	2	2	2
Biological Sciences-A*	5	4	9											
Biological Sciences-B*	5	12	17											
Biomedical Sciences*	13	19	32	1	5	6	9	9	18	24	24	3	2	5
<b>Subtotal</b>	<b>29</b>	<b>40</b>	<b>69</b>	<b>5</b>	<b>10</b>	<b>15</b>	<b>26</b>	<b>19</b>	<b>45</b>	<b>60</b>	<b>5</b>	<b>6</b>	<b>11</b>	
<b>BEHAVIORAL AND SOCIAL SCIENCES</b>														
Anthropology and Sociology*	6	7	13	2	2	4	6	7	13	17	17	1	3	4
Psychology	10	23	33	2	5	7	7	16	23	30	30	2	4	6
Social Sciences*	15	15	30	4	3	7	13	11	24	31	31	1	4	5
<b>Subtotal</b>	<b>31</b>	<b>45</b>	<b>76</b>	<b>8</b>	<b>10</b>	<b>18</b>	<b>26</b>	<b>34</b>	<b>60</b>	<b>78</b>	<b>78</b>	<b>4</b>	<b>11</b>	<b>15</b>
<b>Total</b>	<b>113</b>	<b>115</b>	<b>228</b>	<b>30</b>	<b>25</b>	<b>55</b>	<b>76</b>	<b>72</b>	<b>148</b>	<b>203</b>	<b>203</b>	<b>20</b>	<b>23</b>	<b>43</b>

\*Includes Computer Science, Operations Research, and Statistics

\*\*Includes Atmospheric Sciences

†Includes Metallurgy

‡Includes Physical Sciences-other

§Includes Agriculture, Agronomy, Biological Oceanography, Botany, Ecology, Entomology, Environmental Sciences, Fish & Wildlife, Forestry, Horticulture, Phytopathology, and Soil Science

¶Includes Anatomy, Microbiology, Cellular Biology, Genetics, Zoology, Life Sciences-other

||Includes Anatomy, Microbiology, Nutrition & Metabolism, Pathology, Pharmacology, Physiology, Veterinary Science

\*\*Includes Archaeology, Linguistics, Social Sciences-other

††Includes Economics, Environmental Sciences (Social), Geography (other than physical), History & Philosophy of Science, International Relations, Political Science, Urban & Regional Planning, Social Sciences-other

**TABLE 6 NSF Minority Graduate Fellowship Program FY 1982, Number of Applicants and Awards by State of Permanent Residence and by Sex**

State	Number of Applicants			Number of Awards Offered		
	Male	Female	Total	Male	Female	Total
Alabama	2		2			
Arizona	2	1	3	1	1	2
Arkansas	1		1			
California	11	12	23	5	3	8
Colorado	1	1	2			
Connecticut	2		2	1		1
Delaware	1	2	3			
District of Columbia	3	1	4			
Florida	4	5	9			
Georgia	3	5	8			
Hawaii	2	1	3			
Illinois	4	6	10	3	1	4
Indiana		3	3		2	2
Kansas	1		1	1		1
Kentucky	1		1			
Louisiana	1	2	3			
Maryland	2	7	9		2	2
Massachusetts	2	1	3			
Michigan	5	1	6	2		2
Minnesota	2	1	3	1	1	2
Mississippi		3	3			
Missouri	2	2	4		1	1
Nevada	1		1	1		1
New Jersey	1	4	5	1		1
New Mexico	1	1	2		1	1
New York	14	12	26	1	3	4
North Carolina	5	5	10		1	1
Ohio	4	5	9	2		2
Oklahoma	1	3	4			
Pennsylvania	2	3	5	2	2	4
Puerto Rico	9	11	20	1	4	5
South Carolina		6	6		1	1
South Dakota	1		1			
Tennessee	2		2	1		1
Texas	9	4	13	4	2	6
Utah	1		1	1		1
Virgin Islands	2		2			
Virginia	7	6	13	2		2
Washington	1		1			
Wisconsin		1	1			
<b>Total</b>	<b>113</b>	<b>115</b>	<b>228</b>	<b>30</b>	<b>25</b>	<b>55</b>

**TABLE 7 NSF Minority Graduate Fellowship Program FY 1982, Number of Awardees by Institution Selected for Fellowship Tenure**

Institution	Number of Awardees
Massachusetts Institute of Technology	7
University of California, Berkeley	5
Stanford University	5
University of Illinois, Urbana-Champaign	3
University of Wisconsin, Madison	3
California Institute of Technology	2
University of California, Los Angeles	2
Cornell University	2
Harvard University	2
Johns Hopkins University	2
University of Pennsylvania	2
Arizona State University	1
Boston University	1
University of California, Irvine	1
University of California, Santa Barbara	1
University of Chicago	1
Georgetown University	1
Memphis State University	1
Michigan State University	1
University of Minnesota, Minneapolis	1
University of Nevada	1
New School for Social Research	1
University of North Carolina, Chapel Hill	1
Princeton University	1
University of Puerto Rico	1
University of Puerto Rico School of Medicine	1
Rico University	1
Southern Methodist University	1
Temple University	1
University of Washington	1
Wright State University	1
<b>Total</b>	<b>55</b>
<b>Total Institutions Represented:</b>	<b>31</b>

As in the NSF Graduate Fellowship Program, the announcement for the 1982 NSF Minority Graduate Fellowship Program competition was not made until the first week of November, two months later than the usual announcement time. This was due to the delay in the 1982 federal budget process which resulted in very late approval to go ahead with the 1982 competition. This two-month delay in publicizing the program probably contributed to the lower number of applicants in this year's competition.

Persons from 37 states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands applied for fellowships, and awards were made to individuals from 22 states and Puerto Rico (Table 6). The recipients of awards chose 31 different institutions. Table 7 lists the institutions selected in descending order. The Massachusetts Institute of Technology, University of California-Berkeley, and Stanford received the largest number of NSF awards in the Minority Program.

The applications were reviewed by highly qualified panelists who were selected from university faculty, government laboratories, and industries. Thirty-four

panelists were appointed by the National Research Council to serve on eight panels. The panels included about 21 percent women and were divided by ethnic group as follows: 3 percent American Indians, 35 percent Caucasians, 24 percent Hispanics, and 38 percent Blacks. Figure 3 shows the distribution of panelists by states.

### Panels on National Science Foundation Minority Graduate Fellowships

#### Behavioral and Social Sciences A (Psychology)

*Chairman* David H. Crowell, Professor, Department of Psychology, University of Hawaii at Manoa, Honolulu, Hawaii 96822 (Developmental Psychology)  
*Terry Maple*, Associate Professor, School of Psychology, Georgia Institute of Technology, Atlanta, Georgia 30332 (Experimental Psychology)  
*Peter G. Ossorio*, Associate Professor, Department of Psychology, University of Colorado, Boulder, Colorado 80309 (Social Psychology)  
*Ewart A. C. Thomas*, Professor, Department of Psychology, Stanford University, Stanford, California 94305 (Statistical Methodology)

#### Behavioral and Social Sciences B (Anthropology, Archaeology, Linguistics, Sociology)

*Chairman* Ronald J. Mason, Professor, Department of Anthropology, Lawrence University, Appleton, Wisconsin 54911 (Archaeology)  
*LaVerne J. Masayesva-Jeanne*, Assistant Professor, Department of Linguistics, University of Arizona, Tucson, Arizona 85721 (Linguistics)  
*Julius Rivera*, Professor, Department of Sociology and Anthropology, University of Texas, El Paso, Texas 79968 (Sociology and Anthropology)  
*William A. Sampson*, Associate Professor, Department of Sociology, Northwestern University, Evanston, Illinois 60201 (Sociology)

#### Behavioral and Social Sciences C (Economics, Geography, History & Philosophy of Science, Political Science, Urban & Regional Planning)

*Chairman* John F. Hurley, Professor and Head, Department of Economics, Jackson State University, Jackson, Mississippi 39217 (Economics)  
*Victor Olorunsola*, Professor and Chairman, Department of Political Science, Iowa State University, Ames, Iowa 50010 (Political Science)  
*Carolyn J. Ryan*, Associate Professor, Department of Geography, Temple University, Philadelphia, Pennsylvania 19122 (Geography)  
*Bobby M. Wilson*, Associate Professor, School of Social and Behavioral Sciences, University of Alabama, Birmingham, Alabama 35294 (Urban Planning)

## Biological Sciences

**Chairman** Cecil C. Still, Professor, Department of Biochemistry and Microbiology, Rutgers University, New Brunswick, New Jersey 08903 (Plant Biochemistry/Physiology)

Thoyd Melton, Assistant Professor, Department of Microbiology, North Carolina State University, Raleigh, North Carolina 27650 (Microbiology)

Anne Spacie, Associate Professor, Department of Forestry and Natural Resources, Purdue University, West Lafayette, Indiana 47907 (Limnology/Pollution Biology)

Marian Wilson-Comer, Assistant to the Provost and Academic Vice President, Chicago State University, Chicago, Illinois 60628 (Botany)

## Biomedical Sciences, Biochemistry and Biophysics

**Chairman** Efrain Toro-Goyco, Professor and Chairman, Department of Biochemistry and Nutrition, School of Medicine, University of Puerto Rico, San Juan, Puerto Rico 00936 (Biochemistry)

Daniel Acosta, Jr., Associate Professor, College of Pharmacy, University of Texas, Austin, Texas 78712 (Pharmacology)

Earl Dixon, Jr., Professor, Department of Physiology, School of Veterinary Medicine, Tuskegee Institute, Tuskegee Institute, Alabama 36086 (Physiology)

Wilbert Gamble, Professor, Department of Biochemistry and Biophysics, Oregon State University, Corvallis, Oregon 97331 (Biochemistry)

Diana I. Martinez, Associate Professor, Department of Natural Science, Michigan State University, East Lansing, Michigan 48824 (Biochemistry)

Gerard R. Vela, Professor, Department of Biological Sciences, North Texas State University, Denton, Texas 76203 (Bacteriology/Microbiology)

## Chemistry and Earth Sciences

**Chairman** Fitzgerald Bramwell, Professor, Department of Chemistry, Brooklyn College of the City University of New York, Brooklyn, New York 11210 (Physical Chemistry)

Emmy Booy, Assistant Professor, Department of Geology, Colorado School of Mines, Golden, Colorado 80401 (Engineering Geology)

Roy J. Greenfield, Professor, Department of Geosciences, Pennsylvania State University, University Park, Pennsylvania 16802 (Geophysics)

Juan Villa, Professor, Department of Chemistry, Herbert H. Lehman College of the City University of New York, Bronx, New York 10468 (Inorganic Chemistry)

## Engineering

**Chairman** Melvyn Branch, Associate Professor, Department of Mechanical Engineering, University of Colorado, Boulder, Colorado 80309 (Mechanical Engineering)

Carlos McDonald, Associate Professor, Department of Electrical Engineering, University of Texas, El Paso, Texas 79968 (Electrical Engineering)

Stuart C. Schwartz, Professor, Department of Electrical Engineering and Computer Science, Princeton University, Princeton, New Jersey 08544 (Electrical Engineering)

Theodore J. Williams, Professor and Director, Laboratory for Applied Industrial Control, Purdue University, West Lafayette, Indiana 47907 (Chemical Engineering)

## Mathematics, Applications of Mathematics, Physics and Astronomy

**Chairman** J. Roger Sheridan, Professor and Head, Department of Physics, University of Alaska, Fairbanks, Alaska 99701 (Atomic Physics)

Roscoe C. Giles, Assistant Professor, Department of Physics, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139 (Theoretical Physics)

Carl D. Meyer, Associate Professor, Department of Mathematics, North Carolina State University, Raleigh, North Carolina 27650 (Applied Mathematics/Computer Science)

Edith T. Stevenson, Member of Technical Staff, Bell Laboratories, Denver, Colorado 80234 (Analysis)

## Final Board

Fitzgerald Bramwell, Melvyn Branch, David H. Crowell, John F. Hurley, Ronald J. Mason, J. Roger Sheridan, Cecil C. Still, Efrain Toro-Goyco

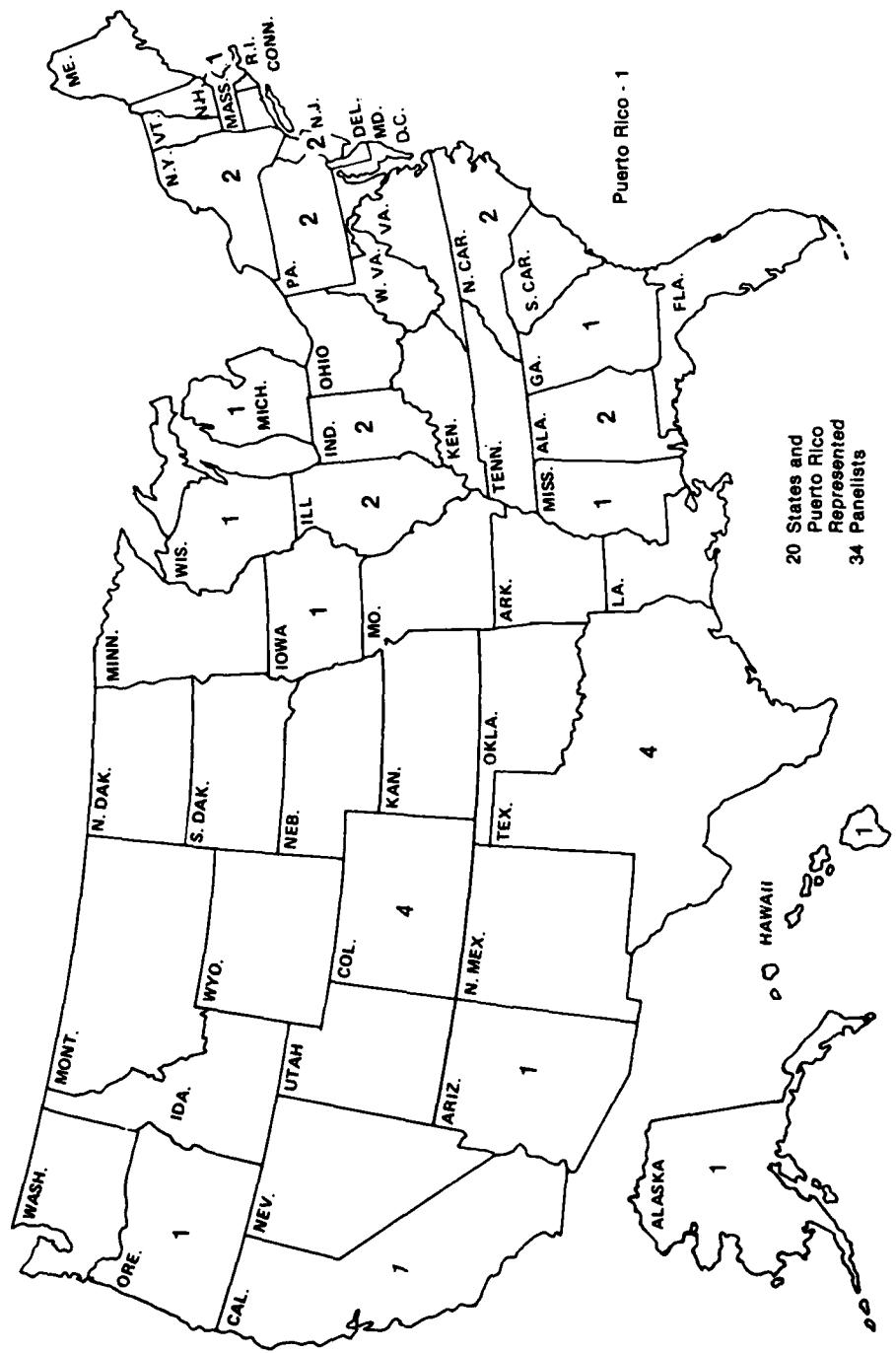


FIGURE 3 NSF Minority Graduate Fellowship Program FY 1982, Distribution of Panelists by State.

### III Postdoctoral Fellowships for Minorities Program

#### The Program

This year the National Research Council, with the continuing support of the Ford Foundation, administered the third national competition of the Postdoctoral Fellowships for Minorities Program. Thirty-five fellowships were awarded to outstanding scholars in the biological sciences, engineering sciences, humanities, mathematics, physical sciences, social sciences and in interdisciplinary areas. Through these faculty development fellowships, the Ford Foundation intends to aid in the enrichment and development of the professional careers of the Fellows, drawn from college and university faculties across the country.

Two hundred and thirty members of specified minority groups underrepresented in formal programs of postdoctoral study and research in the United States made application to the program. These applications, received from Black Americans, Mexican Americans/Chicanos, Puerto Ricans and Native Americans, were evaluated on the basis of merit.

Applications were categorized as follows: Regular Postdoctoral Category — individuals holding the doctorate for two to five years as of the deadline date for submission of applications; and Senior Postdoctoral Category — individuals more than five years beyond the doctorate.

These fellowships, having a twelve-month limit of non-renewable tenure, provide the Fellow with the opportunity to pursue advanced study at a nonprofit institution, preferably in the United States. Numerous universities or their affiliated institutes were chosen by

the Fellows as host institutions; also chosen were privately sponsored nonprofit institutes, centers for advanced study, and one national laboratory (Table 10).

For the purpose of evaluation, applications were assigned to one of the following panels: Behavioral Sciences; History and Philosophy; Literature, Languages, and Linguistics; Humanities/Other (Art, Drama and Music); Physical and Life Sciences; and Social Sciences (Table 8).

Geographically, the Fellows are from 17 states and Puerto Rico (Table 9). Of the 35 awards, 11 were made to women. The distribution of minority group membership of awards is: 24 Black Americans, 8 Mexican Americans/Chicanos, 2 Puerto Ricans, and one Native American. By discipline, there were 13 awards in the Behavioral and Social Sciences, 12 awards in the Humanities, and 10 awards in the Physical and Life Sciences, Mathematics and Engineering.

Panels of highly qualified humanities scholars and scientists, selected by the National Research Council, reviewed applications and made recommendations to the NRC for award consideration. The panels consisted of 44 individuals from 16 different states as well as the District of Columbia and Puerto Rico. Eighty-four per cent of the panelists who reviewed applications were minority group members; 27 per cent were women.

The National Research Council, in addition to arranging for the review of the applications in this program, also is responsible for the payment of stipends and travel allowances to Fellows and the payment of cost-of-research allowances to host institutions. Upon completion of fellowship tenure, the NRC arranges with each Fellow's institution of employment a joint grant-in-aid for the Fellow's continued research.

**Awardees**  
**1982 Postdoctoral Fellowships for Minorities**

Name and Home Institution	Fellowship Institution	Field
Paul Bai Akridge, University of Missouri, St. Louis	Washington University	Political Science/Public Administration
Richard A. Banks, Hampton Institute	University of Texas Health Science Center, Houston	Tumor Biology
John Baugh, University of Texas, Austin	Center for Applied Linguistics	Sociolinguistics
Gloria Jennien Braxton, Southern University, Baton Rouge	Ahmadu Bello University, Nigeria	Development Politics/African Politics
Yolanda Julia Broyles, University of Texas, San Antonio	El Teatro Campesino, California	Chicano Theatre
Magali Marie Carrera, Southeastern Massachusetts University	Harvard University	Art History of Ancient Mexico
Gerald R. Chachere, Howard University	University of Maryland	Differential Geometry
Leonard Spencer Cole, Livingstone College	University of Alabama, Birmingham	Biology
Thadious Marie Davis, University of North Carolina, Chapel Hill	University of Virginia	American Literature
April Yvonne Ferguson, Georgia Southern College	University of Michigan	Educational Psychology
Jimmie Lewis Franklin, Eastern Illinois University	University of Alabama, Tuscaloosa	American History
Mario Trinidad Garcia, University of California, Santa Barbara	University of Texas, El Paso	Chicano History
Alexander Gonzalez, California State University, Fresno	Stanford University	Social Psychology
Nancy Louise Grant, Northwestern University	Institute for Policy Studies	American History
Bernadette Gray-Little, University of North Carolina, Chapel Hill	Duke University	Personality Psychology
Rayna Diane Green, Dartmouth College	Smithsonian Institution	Anthropology
Trudier Harris, University of North Carolina, Chapel Hill	Harvard University	Black American Literature
Willie Lawrence Hogue, University of California, Irvine	University of California, Los Angeles	Afro-American Literature
Wendell P. Holbrook, Bryn Mawr College	Johns Hopkins University	African History
Bertha G. Holliday, Vanderbilt University	Cornell University	Psychology/Human Development
George Henry Jones, University of Michigan	John Innes Institute, England	Molecular Biology
Robert Louis-Ferdinand, Wayne State University	Catholic University of Louvain, Belgium	Pharmacology/Biochemical Toxicology
Ronald L. Mallett, University of Connecticut	University of Texas, Austin	Physics/Relativity
Joe Louis Martinez, Jr., University of California, Irvine	Salk Institute for Biological Studies	Physiological Psychology
Melvin Lee Oliver, University of California, Los Angeles	University of Southern California	Afro-American Studies
Carl Lindell Prather, Virginia Polytechnic Institute and State University	University of Wisconsin, Madison	Mathematics/Analysis
Clifford Erwin Reid, Grinnell College	Princeton University	Economics
Francisco Rivera-Batiz, Indiana University, Bloomington	University of Chicago	International Economics
Francisco J. Samaniego, University of California, Davis	University of Washington	Biostatistics
Alex M. Saragoza, University of California, Berkeley	University of California, San Diego	Mexican History
Ronald Richard Smith, Indiana University, Bloomington	Johns Hopkins University	Caribbean History and Culture
Carlos A. Toro, University of Puerto Rico, Rio Piedras	Harvard University	Psychology/General Systems Theory
Hanes Walton, Jr., Savannah State College	Howard University	Political Science/Black Voting Behavior
Harvey James Whitfield, University of Michigan	National Institutes of Health	Biochemistry
Maria Elena Zavala, U.S. Department of Agriculture	University of California, Berkeley	Botany/Plant Cell Development

**Awardees**  
**1981 Postdoctoral Fellowships for Minorities**

Name and Home Institution	Fellowship Institution	Field
Joseph F. Aponte, University of Louisville	University of North Carolina, Chapel Hill	Clinical-Community Psychology
Anthony J. Cardenas, Wichita State University	University of Wisconsin, Madison	Medieval Spanish
Orlando Cuellar, University of Utah	University of Hawaii	Zoology
James H. Curry, University of Colorado, Boulder	University of Minnesota, Minneapolis	Math-Dynamical Systems
Sandra E. Drake, Stanford University	Yale University	Comparative Literature Caribbean-Afro-American
Bettie B. Evans, University of Georgia	University of Georgia	Biochemical Pharmacology
Amassa C. Fauntleroy, University of Illinois, Urbana-Champaign	Institute for Advanced Study, Princeton, New Jersey	Math-Algebraic Geometry
Richard A. Goldsby, University of Maryland	National Institutes of Health, Bethesda, Maryland	Microbiology-Molecular Immunology
Vera M. Green, Rutgers University	Institute for Advanced Study, Princeton, New Jersey	Anthropology-Cultural/Applied and Developmental
Ruth L. Greene, Johnson C. Smith University	Duke University	Psychology-Psychological Aging
Priscilla Hambrick-Dixon, New York University	Albert Einstein College of Medicine, Yeshiva University	Clinical Child Psychology
Robert L. Hampton, Connecticut College	Children's Hospital Medical Center, Boston, Massachusetts	Sociology of the Family
Darnell F. Hawkins, University of North Carolina, Chapel Hill	Duke University	Sociology of Law
Emma L. Jackson, Massachusetts Institute of Technology	Joint Center for Urban Studies, Harvard University	Political Science-Urban Politics
Clara B. Jones, Laboure Junior College, Boston, Massachusetts	Harvard University	Behavioral Genetics
Edmond J. Keller, Indiana University, Bloomington	University of California, Berkeley	Political Science-African Politics & Public Policy
Samella S. Lewis, Scripps College, Claremont, California	Amistad Research Center, Dillard University	Art History and Esthetics
Jose E. Limon, University of Texas, Austin	University of California, Berkeley	Anthropology-Sociolinguistics
Coramae R. Mann, Florida State University	Cornell University, Oakland Project	Sociology-Criminology
*Juan R. Martinez, University of California, Berkeley	Stanford University	Chicano History
*Oscar J. Martinez, University of Texas, El Paso	Center for Advanced Study in the Behavioral Sciences	History of the U.S. - Mexican Border
Vonnie C. McLoyd, University of Michigan	Stanford University	Developmental Psychology
*Theresa Melendez-Hayes, University of Texas, El Paso	University of Texas, Austin	Mexican Folklore
Alfred A. Moss, University of Maryland	Howard University	Afro-American History
Roosevelt Newson, Western Michigan University	Juilliard School of Music	Piano
Raymund A. Paredes, University of California, Los Angeles	University of California, Berkeley	Mexican American Literature
*Kathy A. Perkins, Smith College	Columbia University	20th Century Black American Theatre
*Carla L. Peterson, University of Maryland	Princeton University	French and English Literature
John G. Ratcliffe, University of Wisconsin, Madison	Institute for Advanced Study, Princeton, New Jersey	Math-Combinatorial Group Theory
Oswald Rendon-Herrero, Mississippi State University	University of Rhode Island	Geotechnical Engineering
Cedric J. Robinson, University of California, Santa Barbara	University of Cambridge, England	Political Science-Political Theory
Jeffrey C. Stewart, University of California, Los Angeles	Howard University	Afro-American History
Charles B. Thomas, Jr., Southern Methodist University	Temple University	Social Psychology
Luz M. Umpierre, Rutgers University	University of Kansas	Spanish American/Caribbean Literature
Martha C. Zuniga, Yale University School of Medicine	Medical Research Council, Cambridge, England	Molecular Biology-Immunology

\*Indicates National Endowment for the Humanities Fellows.  
 All other Fellows supported by the Ford Foundation.

**Awardees**  
**1980 Postdoctoral Fellowships for Minorities**

Name and Home Institution	Fellowship Institution	Field
Margaret U. Blackshear, Tennessee Neuropsychiatric Institute	Vanderbilt University	Psychopharmacology
Carolyn T. Brown, Howard University	Princeton University	Chinese Literature
Manuel L. Carlos, University of California, Santa Barbara	University of California, San Diego	Anthropology
Alexander Cruz, University of Colorado, Boulder	Institute of Tropical Forestry, Puerto Rico	Ecology
William R. Ellis, University of California, Berkeley	University of California, Berkeley	Interdisciplinary Study in Sociology, Architecture and Planning
Barbara J. Fields, University of Michigan	Woodrow Wilson International Center for Scholars (Visiting Scholar - 3 months) and University of Maryland (9 months)	History
Eugene E. Garcia, University of California, Santa Barbara	Arizona State University	Psychology
Louis C. Green, San Diego State University	University of California, Berkeley	Economics
Johnny Lee Greene, University of North Carolina, Chapel Hill	Yale University	American Literature
Beverly Carolease Grier, University of North Carolina, Chapel Hill	Duke University	Political Science
Elizabeth Starr Higginbotham, University of Pittsburgh	Columbia University	Sociology
James C. Hogan, Jr., University of Connecticut	Yale University & Marine Biological Laboratory	Biology
Margo Humphrey, University of California, Santa Cruz	University of New Mexico	Lithography
Carol C. Hunter, Oscar Rose Junior College	Newberry Library & University of Illinois, Chicago Circle	American Indian Literature
Reginald Leo Jackson, Simmons College	Museum of the National Center Afro-American Artists, Boston	Communication -Visual Anthropology
Louise Ano Nuevo Kerr, Loyola University, Chicago	Newberry Library	History
Marvin Alfonso Lewis, University of Illinois, Urbana	Newberry Library	Spanish, Afro-Hispanic Literature
Michael Alien Mares, University of Pittsburgh	University of Arizona	Evolutionary Ecology
Arsenio Peter Martinez, State University College, New Paltz, N.Y.	Columbia University	History
Roberto Abraham Mena, University of Wyoming	California Institute of Technology	Mathematics
Ronald Elbert Mickens, Fisk University	Vanderbilt University	Physics
John R. Morgan, Glassboro State College	University of Pennsylvania	Psychology
Sekazi Kauze Mttingwa, University of Maryland	Fermi National Accelerator Laboratory, Batavia, Ill.	Physics
Woesha Cloud North, University of Nebraska	University of California, Berkeley & University of Wisconsin, Milwaukee	Native American Studies
Maria Luisa Nunes, University of Pittsburgh	Columbia University	Brazilian Literature
Angel M. Pacheco-Maldonado, University of Puerto Rico, Rio Piedras	Harvard University	Anthropology
Carol Brunson Phillips, Pacific Oaks College	Drew Postgraduate Medical School, Los Angeles	Human Development
Philip M. Powell, University of Texas, Austin	University of California, Berkeley	Developmental Psychology
Ivory Thomas Robinson, University of New Mexico	Harvard University	Political Science
Renato Ignacio Rosaldo, Jr., Stanford University	Center for Advanced Study in the Behavioral Sciences	Cultural Anthropology
Blanca G. Silvestrini, University of Puerto Rico, Rio Piedras	Harvard University	History of Science
Marvin Curtis Sterling, University of Oklahoma	Princeton University	Philosophy of Religion
Darius Leander Swann, George Mason University	American University	Asian Theatre
Rosalyn M. Terborg-Penn, Morgan State University	Howard University	Afro-American History
Scott Warner Williams, State University of New York, Buffalo	Ohio University	Mathematics

**TABLE 8 Postdoctoral Fellowships for Minorities Program FY 1982, Number of Applicants and Awards Offered by Field of Study and by Sex**

	Number of Applicants			Number of Awards Offered		
	Male	Female	Total	Male	Female	Total
Behavioral Sciences (Psychology)	20	19	39	3	3	6
Humanities (Art, Drama, Music)	10	5	15	1	1	2
Humanities (History and Philosophy)	31	5	36	4	1	5
Humanities (Literature and Languages)	19	22	41	2	3	5
Physical and Life Sciences, Mathematics and Engineering	38	13	51	9	1	10
Social Sciences	39	9	48	5	2	7
<b>Total</b>	<b>157</b>	<b>73</b>	<b>230</b>	<b>24</b>	<b>11</b>	<b>35</b>

### Panels on Postdoctoral Fellowships for Minorities Program

#### Behavioral Sciences (Psychology)

*Chairman Carrell P. Horton, Professor and Chairman, Division of Social Sciences, Fisk University, Nashville, Tennessee 37203 (Developmental Psychology)*

*Raymond T. Garza, Associate Professor, Department of Psychology, University of California, Riverside, California 92521 (Social Psychology)*

*Maria M. Lopez-Garriga, Associate Professor, Department of Psychology, University of Puerto Rico, Rio Piedras, Puerto Rico 00931 (Social Psychology)*

*Raymond C. Norris, Professor, Department of Psychology and Human Development, George Peabody College, Vanderbilt University, Nashville, Tennessee 37203 (Educational Psychology)*

*Amado M. Padilla, Professor, Department of Psychology, University of California, Los Angeles, California 90024 (Educational/Developmental Psychology)*

*Vernon J. Perez, Professor, Department of Psychology, Texas Tech University, Lubbock, Texas 79409 (Physiological Psychology)*

*Barbara Shade, Associate Professor, Division of Education, University of Wisconsin-Parkside, Kenosha, Wisconsin 53141 (Social Psychology)*

#### Humanities (Literature and Languages)

*Chairman Carlos R. Hortal, Professor and Chairman, Department of Romance Languages, Hunter College of the City University of New York, New York, New York 10021 (Spanish)*

*Margaret Church, Professor of English and Chairman, Committee on Comparative Literature, Purdue University, West Lafayette, Indiana 47907 (Comparative and Modern Literature)*

Alice Davison, Visiting Assistant Professor, Department of Linguistics, University of Illinois, Urbana, Illinois 61801 (Linguistics)  
 R. R. Hinojosa-Smith, Professor, Department of English, University of Texas, Austin, Texas 78712 (English and American Studies)  
 George E. Kent, Professor, Department of English, University of Chicago, Chicago, Illinois 60637 (English and American Literature)

**TABLE 9 Postdoctoral Fellowships for Minorities Program FY 1982, Number of Applicants and Awards by State of Permanent Residence and by Sex**

State	Number of Applicants			Number of Awards Offered		
	Male	Female	Total	Male	Female	Total
Alabama	3		3			
Arizona	1	1	2			
Arkansas	1		1			
California	24	6	30	7	1	8
Colorado	2		2			
Connecticut	2		2	1		1
Delaware		2	2			
District of Columbia	3		3			
Florida	3	2	5			
Georgia	9	7	16	1	1	2
Illinois	5	2	7	1	1	2
Indiana	4		4	2		2
Iowa	1	1	2	1		1
Kansas	1		1			
Kentucky	1		1			
Louisiana	2	4	6		1	1
Maryland	5	7	12	1		1
Massachusetts	6	3	9		2	2
Michigan	7	2	9	3		3
Minnesota	2		2			
Mississippi	1	3	4			
Missouri	3	1	4	1		1
Nevada		1	1			
New Hampshire		1	1		1	1
New Jersey	7		7			
New Mexico	3	1	4			
New York	9	8	17			
North Carolina	9	5	14	1	2	3
Ohio	3	1	4			
Oklahoma	4		4			
Oregon	1		1			
Pennsylvania	5		5	1		1
Puerto Rico	5	4	9	1		1
Rhode Island	1		1			
South Carolina	1	1	2			
Tennessee	3	2	5		1	1
Texas	6	3	9	2	1	3
Utah	2		2			
Virgin Islands	1		1			
Virginia	8	2	10	1		1
Washington		2	2			
Wisconsin	3	1	4			
<b>Total</b>	<b>157</b>	<b>73</b>	<b>230</b>	<b>24</b>	<b>11</b>	<b>35</b>

**TABLE 10 Postdoctoral Fellowships for Minorities FY 1982, Number of Awardees by Institution Selected for Fellowship Tenure**

Institution	Number
<b><i>United States Institutions</i></b>	
Harvard University	3
Johns Hopkins University	2
University of Alabama, Birmingham	1
University of Alabama, Tuscaloosa	1
University of California, Berkeley	1
University of California, Los Angeles	1
University of California, San Diego	1
Center for Applied Linguistics	1
University of Chicago	1
Cornell University	1
Duke University	1
Howard University	1
Institute for Policy Studies	1
University of Maryland	1
University of Michigan	1
National Institutes of Health	1
Princeton University	1
Salk Institute for Biological Studies	1
Smithsonian Institution	1
University of Southern California	1
Stanford University	1
El Teatro Campesino	1
University of Texas, Austin	1
University of Texas, El Paso	1
University of Texas Health Science Center, Houston	1
University of Virginia	1
Washington University	1
University of Washington	1
University of Wisconsin, Madison	1
Subtotal	32
<b><i>Foreign Institutions</i></b>	
Ahmadu Bello University, Nigeria	1
Catholic University of Louvain, Belgium	1
John Innes Institute, England	1
Subtotal	3
Total	35
<b>Total Institutions Represented: 32</b>	

Francisco A. Lomeli, Assistant Professor, Department of Spanish and Portuguese, University of California, Santa Barbara, California 93106 (Spanish and Portuguese)  
 A. LaVonne Ruoff, Professor, Department of English, University of Illinois, Chicago Circle, Illinois 60680 (English Literature)  
 Joseph T. Skerrett, Associate Professor, Department of English, University of Massachusetts, Amherst, Massachusetts 01003 (English and American Studies)  
 William H. Wiggins, Jr., Associate Professor, Department of Afro-American Studies, Indiana University, Bloomington, Indiana 47405 (Afro-American Folklore)

### **Humanities (History and Philosophy)**

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 Bettye J. Gardner, Dean, Division of Arts and Sciences, Coppin State College, Baltimore, Maryland 21216 (American/Afro-American History)  
 Darlene C. Hine, Vice Provost and Associate Professor, Department of History, Purdue University, West Lafayette, Indiana 47907 (Afro-American History)  
 William R. Jones, Professor, Department of Religion and Director, Black Studies Program, Florida State University, Tallahassee, Florida 32306 (Philosophy)  
 Ramon E. Ruiz, Professor, Department of History, University of California-San Diego, La Jolla, California 92093 (Latin American History)

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 Joanne R. Cantor, Associate Professor and Associate Chair, Department of Communication Art, University of Wisconsin, Madison, Wisconsin 53706 (Communication Art)  
 David C. Driskell, Professor and Chairman, Department of Art, University of Maryland, College Park, Maryland 20742 (Art)  
 Jorge A. Huerta, Associate Professor, Department of Drama, University of California-San Diego, La Jolla, California 92093 (Drama)  
 William Owens, Professor and Chairman, Division of Humanities, Virginia Union University, Richmond, Virginia 23220 (Speech and Dramatic Literature)  
 Paula Poindexter, Special Projects Coordinator, Marketing Research, The Los Angeles Times, Los Angeles, California 90053 (Newspaper Journalism)  
 Jacinto Quirarte, Director, Research Center for the Arts, College of Fine and Applied Arts, University of Texas, San Antonio, Texas 78285 (Art)  
 Carol Robertson, Assistant Professor, Department of Music, University of Maryland, College Park, Maryland 20742 (Music, Ethnomusicology)

### **Social Sciences**

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 James Conyers, Professor, Department of Sociology and Social Work, Indiana State University, Terre Haute, Indiana 47809 (Sociology)  
 C. Vernon Gray, Professor and Chairman, Department of Political Science, Morgan State University, Baltimore, Maryland 21239 (Political Science)  
 Gerald D. Jaynes, Associate Professor of Economics and Afro-American Studies, Yale University, New Haven, Connecticut 06520 (Economic Theory and Urban Economic Development)  
 Leslie B. McLemore, Professor and Chairman, Department of Political Science, Jackson State University, Jackson, Mississippi 39217 (Political Science)

Doris Y. Wilkinson, Professor, Department of Sociology and Anthropology, Howard University, Washington, D.C. 20001 (Sociology)  
Franklin D. Wilson, Associate Professor, Department of Sociology, University of Wisconsin, Madison, Wisconsin 53706 (Sociology)

### **Physical/Life Sciences, Mathematics, Engineering, Physics and Astronomy**

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Felix E. Browder, Louis Block Professor of Mathematics, Department of Mathematics, University of Chicago, Chicago, Illinois 60637 (Analysis)

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Juan O. Lawson, Professor, Department of Physics, University of Texas, El Paso, Texas 79968 (General Physics)

Leo C. McAfee, Jr., Associate Professor, Department of Electrical and Computer Engineering, University of Michigan, Ann Arbor, Michigan 48109 (Electrical Engineering)

Mario Jose Molina, Associate Professor, Department of Chemistry, University of California, Irvine, California 92717 (Physical Chemistry)

Marion Oliver, Visiting Associate Professor, Graduate School of Public and International Affairs, University of Pittsburgh, Pittsburgh, Pennsylvania 15260 (Applied Mathematics)

William W. Sutton, Vice President for Academic Affairs and Student Development, Chicago State University, Chicago, Illinois 60628 (Cell Biology)

### **Final Board**

Frank Fernandez-Esteva, Carlos R. Hortas, Carrell P. Horton, Hollis R. Lynch, Portia Maultsby, Prince Rivers

# IV International Atomic Energy Agency Fellowship Program

## The Program

The IAEA Fellowship Program began in April 1958 as a part of the Agency's regular program of technical assistance. It provides opportunities for research and training of needed personnel in the peaceful application of nuclear energy. The fellowships are intended for persons who are already, or soon will be, entrusted with responsibilities which are important to the development of their country. The Fellows are provided an opportunity to broaden their professional knowledge and operational experience by learning new skills and advanced techniques.

Resources of the program are made available through contributions of the member states to the Agency's General Fund and from the United Nations Development Program Fund (UNDP). Certain of the member states also provide fellowships at their national research institutions and universities.

The fellowships are awarded by the IAEA on the basis of the applications submitted to it by the various nations. The awards are classified into two groups, those financed by the IAEA funds or UNDP funds (Type I); and those offered by member states of the agency (Type II) fellowships.

To implement the IAEA Fellowship Program in the United States, the National Research Council administers the program under a contract with the Department of Energy. A major responsibility of the NRC is arranging suitable study or training programs for the fellowship candidates. The administration of the Type II Fellows' program includes:

1. Arranging a program with a university, research institution, or industry suited to the candidate's educational background and program objectives.

2. Providing the administrative support for Fellows which includes visa procurement, arranging all foreign and domestic travel, providing a maintenance allowance, book allowances, tuition and fee charges, health and accident insurance, and Workers' Compensation.

For the Type I Fellows, the NRC carries out the same functions as for the Type II Fellows except that the Agency in Vienna supplies financial support directly to the Fellows. Insurance is also arranged for them, and the NRC is reimbursed for this and any other costs paid more conveniently here.

## Nature of the IAEA Fellowships

The nominees for the IAEA Fellowships, in general, have an academic background of at least a bachelor's degree, or its equivalent in training and experience; about 58 percent also have advanced degrees.

The areas of training and research provided by the fellowship cover a wide range of interests in the peaceful applications of nuclear energy. There has been a change in the emphasis over the years; in the beginning, the

TABLE 11 IAEA Fellowship Program, Status of Type I & II Fellows, Calendar Year 1981

Status	Type I	Type II	Total
Completed Program (since 1958)	735*	1054	1,789
Total on Tenure (during 1981)	66	186	252
Active as of 31 December 1981	20	84	104

\*Includes 172 Scientific Visitors; 8 were on tenure in 1981.

**TABLE 12 IAEA Fellowship Program, Number of Fellows Completed & Active by Place of Training in the United States, 1958 through 1981**

Training Activity	Type I		Type II		Total
	Completed	Active	Completed	Active	
Universities	333	10	604	46	993
U.S. Government Facilities	421	7	464	19	911
Medical School & Facilities	102	1	146	17	266
Exploration, Mining, Processing	30	0	17	0	47
Utilities	33	0	13	0	46
Other Institutions	117	2	55	2	176
English Language Schools	4	0	14	0	18
<b>Total</b>	<b>1040</b>	<b>20</b>	<b>1313</b>	<b>84</b>	<b>2457</b>

**TABLE 13 IAEA Fellowship Program, Educational Levels of Type I & II Fellows**

Education	Type I	Type II	Total
No Degree	12	33	45
Bachelor's	263	493	756
Master's	230	327	557
Ph.D.	190	182	372
M.D.	48	90	138
D.V.M.	9	10	19
Unknown	3	3	6
<b>Total</b>	<b>755</b>	<b>1138</b>	<b>1893</b>

emphasis was on basic techniques, while now the emphasis is on more highly specialized techniques, particularly in the medical and agricultural applications of radioisotopes. Interest also continues in geological exploration for radioactive minerals, in mining techniques, and in ore processing. There has been a considerable increase in the number of Fellows who are interested in some aspect of the production of nuclear power. Included are the construction, instrumentation, control, and environmental impact and regulation of nuclear power plants.

Currently, an assessment of the IAEA Fellowship Program is being conducted to evaluate the effect the Program has had in preparing the awardees to meet their countries' overall nuclear manpower development needs. Fellows whose programs in the United States were completed from calendar years 1975 through 1979 are evaluated in the follow-up study. The systematic analysis is being done by a consultant to the Department of Energy. It is anticipated that the study will be completed by mid-1983.

**TABLE 14 IAEA Fellowship Program, Number of Fellows Completed and Active by Areas of Study, December 31, 1981**

Areas of Study	Type I & Research Fellows		Type II		Total
	Completed	Active	Completed	Active	
General Atomic Energy Development - Planning, legal, economic, documentation, and administration aspects	24	1	27	2	54
Nuclear Physics	63	1	129	4	197
Nuclear Chemistry					
Radiopharmaceuticals	49	1	91	9	150
Prospecting, Mining & Processing	72	1	64	1	138
Nuclear Engineering & Technology	146	4	260	8	418
Application of Isotopes and Radiation in:					
Agriculture	181	5	149	21	356
Medicine	62	2	136	24	224
Biology	42	0	63	0	105
Industry and Hydrology	29	0	27	3	59
Safety in Nuclear Energy	67	5	108	12	192
<b>Total</b>	<b>735</b>	<b>20</b>	<b>1054</b>	<b>84</b>	<b>1893</b>

The Fellowships are normally awarded for periods of time up to one year. Under certain circumstances, extensions may be granted. Twenty-four months is the maximum time a Type II Fellow may be in the program. All extensions require the approval of the International Atomic Energy Agency and the Fellow's Government as well as that of the NRC.

In placing individuals, preference is given to applicants from those countries who are signatories to the Treaty on Non-Proliferation of Nuclear Weapons. Applicants from non-signatory countries whose programs emphasize medicine, agriculture and basic science are considered for placement toward the end of the program year.

### Scientific Visitor Program

Each year a number of scientific visits, usually for not longer than two months, are awarded to experienced scientists from developing nations to visit nuclear centers in more advanced countries. The purpose of the visits is to study the developments in nuclear science and technology, organizational aspects and functioning of

special services, training programs and schools, and to observe research activities in their fields of interest. These awards are intended to enhance the scientific qualifications of the specialists and enable them to contribute more effectively to their country's scientific progress.

The NRC makes the same kinds of arrangements for the Scientific Visitors as for the IAEA-financed Type I Fellows. Each scientist usually visits several institutions during his/her tenure.

### Summary

Since the program started, 1,893 Fellows have participated or are participating in the IAEA program. They have come from 81 different countries, as listed below. About 79 percent have received their training either at a university or government laboratory in the U.S. (Table 12). Most of the participants have an academic degree, with about 58 percent having at least an M.S. degree (Table 13). The areas of study are shown in Table 14. Over 40 percent of the participants receive training in the areas of health physics and radioisotope applications.

During 1981, 252 Fellows were on tenure in the U.S., of whom 186 were supported by U.S. funds. Universities and government laboratories still provide most of the training for the Fellows.

### IAEA Fellowship Program, Alphabetical List of Home Countries of Participating Fellows, 1958 through 1981:

Afghanistan	Hungary	Phillippines
Algeria	Iceland	Poland
Argentina	India	Portugal
Austria	Indonesia	Romania
Bangladesh	Iran	Saudi Arabia
Bolivia	Iraq	Senegal
Brazil	Israel	Sierra Leone
Bulgaria	Italy	Singapore
Burma	Jamaica	South Africa
Cameroon	Japan	Spain
China	Jordan	Sri Lanka
Chile	Kenya	St. Christopher-Nevis
Colombia	Korea	Sudan
Costa Rica	Lebanon	Sweden
Czechoslovakia	Libyan Arab Republic	Switzerland
Denmark	Malaysia	Syria
Dominican Republic	Mauritius	Tanzania
Ecuador	Mexico	Thailand
Egypt, Arab Republic of	Netherlands	Tunisia
El Salvador	New Zealand	Turkey
Ethiopia	Nicaragua	Uganda
Finland	Nigeria	Uruguay
France	Norway	Venezuela
Ghana	Pakistan	Vietnam
Greece	Panama	Yugoslavia
Guatemala	Paraguay	Zaire
Hong Kong	Peru	Zambia

# V Research Associateship Programs

## The Programs

The National Research Council Research Associateship Program enters its twenty-eighth year in 1982. Designed to provide postdoctoral research opportunities in selected federal laboratories and to contribute to the overall research effort of the laboratories, the program has served over 3,600 scientists and engineers, both recent doctoral recipients and senior investigators. Currently eighteen federal research organizations participate in the program. Over four hundred awards, about a fourth of which are extensions of awards, are anticipated in 1982.

The OSEP administers these programs through which postdoctoral engineers and scientists receive awards to become guest investigators at participating federal laboratories. The awardees pursue their proposed research, which is on problems largely of their own choice, but which is compatible with the general interests of the laboratory, working with research advisers who are members of the professional staff of the host organization. None of the research topics are classified. By their presence in the laboratories, the Associates provide stimulation to the professional staff while contributing to the research goals of the sponsoring laboratories, which are situated in more than 50 locations in 26 states and the District of Columbia. In 1982, applications in these programs were reviewed by 85 panelists — distinguished scientists and engineers representing a variety of fields, institutions, and geographic areas.

The Postdoctoral and Resident Research Associateship Programs referred to below are essentially similar, differing chiefly in the administrative mechanism of the award.

The Cooperative Research Associateship Program, initiated in 1980, differs from the traditional types in

that two-year awards are made with the possibility of research support in a third year to be spent in a university or other not-for-profit institution.

The Research Management Associateship Program permits selected Resident Research Associates in the NRC-National Aeronautics and Space Administration Associateship Program to acquire research management experience during an additional year as a member of a science or technology management team at NASA Headquarters.

## Postdoctoral Research Associateship Programs (Type I)

In this type of Associateship program, awardees receive temporary civil service appointments (Tables 15 and 16) from the agency at which the Associates will be on tenure. Only recent recipients of the Ph.D. degree are eligible, and awardees must be U.S. citizens. Initial awards are for one year, and in some cases may be extended into a second year. The agencies and states in which laboratories with this type of Associateship program are located are as follows:

- National Bureau of Standards (NBS) — Colorado, Maryland
- Naval Weapons Center (NWC) — California
- U.S. Geological Survey (USGS) — Arizona, California (2 locations), Colorado, Florida, Hawaii, Massachusetts, Mississippi, Texas, Virginia, Wyoming

In this type of program, the NRC's chief responsibilities are program publicity, application processing, and application evaluation by NRC panels. The NRC also has general responsibility for monitoring the programs to assure that Associates have a productive postdoctoral research experience.

## Resident Research Associateship Programs (Type II)

This type of Research Associateship program differs from the first principally in that awards are made and administered by the NRC following evaluation of applications by special NRC panels (Tables 17 and 18), and that, with a few exceptions, both senior investigators and recent recipients of the doctorate and both U.S. and non-U.S. nationals are eligible for awards. Associates have the status of guest investigators at the federal laboratories at which they are on tenure. Currently there are Associateship programs of this type with the following federal organizations:

- Air Force Systems Command (AFSC) — California, Colorado, Massachusetts, New Mexico (2 locations), Ohio (4 laboratories), Texas
- Armed Forces Radiobiology Research Institute (AFRRI) — Maryland
- Environmental Protection Agency (EPA) — Florida, Georgia, North Carolina (3 laboratories), Oregon, Rhode Island
- National Aeronautics and Space Administration (NASA) — Alabama, California (3 locations), Maryland, New York, Ohio, Texas, Virginia (2 locations)
- National Institute of Occupational Safety and Health (NIOSH) — West Virginia
- National Oceanic and Atmospheric Administration (NOAA) — California, Colorado (2 laboratories), District of Columbia (2 laboratories), Florida (3 laboratories), Hawaii, Maryland (3 locations, 4 laboratories), Oklahoma, Washington (2 laboratories)
- Naval Air Development Center (NADC) — Pennsylvania
- Naval Medical Research and Development Command (NMRDC) — California, Connecticut, Florida, Maryland, Pennsylvania
- Naval Postgraduate School (NPS) — California
- U.S. Army Armament Research and Development Command (ARRADCOM) — Maryland (2 laboratories), New Jersey (2 laboratories)
- U.S. Army Atmospheric Sciences Laboratory (ASL) — New Mexico
- U.S. Army Natick Research and Development Laboratories (NLABS) — Massachusetts
- Walter Reed Army Institute of Research (WRAIR) — District of Columbia, Maryland

## Cooperative Research Associateship Program (Type III)

In 1980 a new type of Associateship Program was added to the two types already in existence: the Cooperative Research Associateship Program, which has the additional objectives of advancing the careers of promising recent Ph.D.s and providing opportunity for post-tenure research in a not-for-profit research institution. To develop this type of program, initiated at the Naval Research Laboratory (NRL), the NRC and NRL representatives worked together closely. What resulted seems to have a high potential for strengthening the relationships among the individual scientist, the federal laboratory, and the academic or other not-for-profit research institution. The National Research Council administers the initial two-year awards in this program, in a way similar to its administration of the Resident Research Associateship Programs; and the federal agency administers the third-year contractual research award. It is expected that about a third of a class of Associates will receive the post-tenure research grant. At the completion of tenure, the Associate will submit a termination report to the NRC. It is anticipated that the longer involvement will make the Associateship Program more attractive to young scientists and engineers. Currently, there are Associateship programs of this type with the following federal organizations:

- Naval Ocean Research and Development Activity (NORDA) — Mississippi
- Naval Research Laboratory (NRL) — District of Columbia

## Research Management Associateship Program

This program, deriving from the NRC Resident Research Associateship Program with the National Aeronautics and Space Administration, began experimentally in mid-1979 and is now successfully established. Associates currently on tenure at the nine NASA Centers are eligible to apply for a Research Management Associateship to be pursued at the NASA Headquarters. The program affords NRC-NASA Associates an opportunity to gain valuable research management experience and benefits NASA by providing highly specialized expertise in selected fields of current scientific and technical interest.

One Research Management Associateship award was made in 1979, two in 1980, and two in 1981. Awardees, who must be U.S. citizens, are selected by NASA and appointed by the NRC upon NASA's recommendation.

TABLE 15 NRC Postdoctoral Research Associateship Programs, Applications Received, Candidates Recommended, Candidates Appointed (new)

	1981			1982		
	Appl.	Rec.	Appt.	Appl.	Rec.	Appt.
National Bureau of Standards	78	63	16	84	66	25
National Bureau of Standards-Engineering	7	7	6	7	6	4
Naval Weapons Center	5	3	3	11	7	2
U.S. Geological Survey	32	21	8	23	9	4
Total	122	94	33	125	88	35*

\*Number of appointments expected to be made at press time.

TABLE 16 NRC Postdoctoral Research Associateship Programs, Federal Organizations and Areas of Investigation

Federal Organization	Areas of Investigation
National Bureau of Standards (U.S. citizens only)	Applied mathematics; atomic, molecular, solid state sciences; building & fire research; chemistry (analytical, inorganic, organic, physical); computer science & technology; engineering (electrical, mechanical, chemical); materials science & engineering; physics (plasma, quantum, radiation, thermal)
Naval Weapons Center (U.S. citizens only)	Acoustics; chemistry (electro-, inorganic, organic, physical); energetic materials; lasers; optics; polymer science; seismology; surface physics; x-ray crystallography
U.S. Geological Survey (U.S. citizens only)	Areal geology & tectonics; cartographic sciences; earthquake studies; geochemistry; geophysics; hydrology; isotope studies; marine geology; mineral & mineral-fuel resources; paleontology & stratigraphy; petrology; volcanology

TABLE 17 NRC Resident and Cooperative Research Associateship Programs, Applications Received and Awards Made (New and Renewal)

	1981		1982	
	New appl.	New and renewal awards	New appl.	New and renewal awards*
<i>Resident Research Associateships (II):</i>				
Air Force Systems Command	51	23	62	21
Armed Forces Radiobiology Research Institute	13	12	12	11
Environmental Protection Agency	60	12	39	27
National Aeronautics and Space Administration	385	192	385	235
National Institute of Occupational Safety and Health	—	—	6**	3
National Oceanic and Atmospheric Administration	62	22	63	21
Naval Air Development Center	—	—	12**	3
Naval Medical Research and Development Command	50	13	34	17
Naval Postgraduate School	6	4	14	8
U.S. Army Atmospheric Sciences Laboratory	3	4	3	5
U.S. Army Armament Research and Development Command	14	3	16	12
U.S. Army Natick Research and Development Command	12	3	13	0
Walter Reed Army Institute of Research	41	17	44	20
<i>Cooperative Research Associateships (III):</i>				
Naval Ocean Research and Development Activity	—	—	7**	4
Naval Research Laboratory	56	24	66	40
Naval Research Laboratory - Engineering	7	6	7	6
Total	760	335	783	433*

\*Expected to be made; not all awards have been offered at date of publication.

\*\*New programs beginning with the 1982 reviews: NIOSH and NORDA in February, NADC in October.

**TABLE 18 NRC Cooperative and Resident Research Associateship Programs, Federal Organizations and Areas of Investigation**

Cooperative and Resident Research Associateships are normally awarded to persons who have held the doctoral degree less than five years; however, Senior Resident Research Associateships are available in most programs for scientists and engineers of demonstrated accomplishment who have held the doctorate five years or more. Three of these programs accept only U.S. citizens; a fourth has restricted citizenship eligibility.

Federal Organization	Areas of Investigation
Air Force Systems Command	Aeronomy; aerospace medicine; aerospace physiology; airbreathing propulsion; aviation vision; biomechanics-bioacoustics; ceramics; chemistry; combustion; crew information systems; electromagnetics; engineering anthropometry; epidemiology; impact acceleration physiology; information sciences; lasers; man-machine interface; materials sciences; mechanics; metallurgy; meteorology; neurophysiology; nuclear effects; physics (solid state, gas laser, optical, space); plumes; power generation; radiobiology; soil mechanics; solid propellant mechanics; stress physiology; structural engineering; terrestrial sciences; toxicology; workload
Armed Forces Radiobiology Research Institute	Behavioral sciences; biochemistry; experimental hematology; physiology; radiobiology
Environmental Protection Agency	Air pollution control engineering — chemical, environmental, mechanical; aquatic microbiology; behavior toxicology; biological monitoring; biophysics — cellular, membrane; chemical carcinogenesis; chemical hazard assessment in the marine/estuarine environment; chemistry (analytical, organic, inorganic); clinical neurophysiology; environmental processes; fresh water ecology; gas chromatography; genetic bioassay; immunology; kinetics of atmospheric processes; mammalian cell mutagenesis; marine ecology; marine hazard assessment; marine microcosms; mass spectroscopy; mathematical modeling; measurement methodology; meteorology — pollutant transport; neurophysiology; nitrification; photochemistry; physical chemistry; physical/mathematical modeling of atmospheric processes; physics; plant physiology; pollutant degradation; pollutant transformation — aerosol formation; psychophysiology; reproductive physiology & teratology; terrestrial microcosms
National Aeronautics and Space Administration	Acoustics; advanced energetics; advanced life support techniques; aero-astro-dynamics; aeronautical human factors; aerospace medicine; aircraft and spacecraft structures; astronomy; atmospheric, earth, ocean, optical, materials, space, solid state sciences; biochemistry; biomedical image processing; biomedical research; chemistry; climatology; clinical applications of ultrasound; communications; computational fluid mechanics; computer sciences; control; cryogenics; earth observations and resources/remote sensing; engine structures; engineering; extraterrestrial research; flight dynamics; guidance; hematology and immunology; infrared; microelectronics; navigation; neurophysiology; numerical analysis & modeling; photovoltaics; physics; physiology; plasma physics; solar energy utilization through bioconversion; solar physics; space biology; tribology; turbomachinery; and other related fields
National Institute of Occupational Safety and Health	Biochemistry; biomedical engineering, biophysics; cell physiology; genetic toxicology; immunology; microbiology; pathology; pharmacology; physiology
National Oceanic and Atmospheric Administration	Aeronomy; atmospheric sciences; climatology; hydrology; marine & space sciences; oceanography; physiology and behavior of marine organisms; seismology
Naval Air Development Center	Acoustics and nondestructive testing; composite structures; materials sciences
Naval Medical Research and Development Command	Aerospace medicine; behavioral sciences; biochemistry; biomechanics; biophysics; experimental dentistry; experimental medicine; human engineering; immunology; microbiology — communicable diseases; parasitology; physiology; psychoacoustics; radiation biology; underwater medicine; vision and visual perception
Naval Ocean Research and Development Activity — a Type III program (U.S. citizens only)	Mapping, charting, and geodesy; marine geology and geophysics; numerical ocean modeling; ocean acoustics; oceanography (biological, chemical, physical, polar); remote sensing
Naval Postgraduate School	Aeronautical, electrical and mechanical engineering; meteorology; oceanography; operations research; applied mathematics; atmospheric physics
Naval Research Laboratory — a Type III program (U.S. citizens only)	Acoustics; atmospheric sciences; chemistry; communications; computational physics; electron and ion beams; electronics and EW; energy conversion; environmental effects; hydrodynamics; lasers; marine biology/biochemistry; marine technology; materials; optical sciences; plasma physics; polymers; radar; radiation technology; space science and systems; structure of matter

Federal Organization	Areas of Investigation
U.S. Army Armament Research and Development Command (U.S., Canada, U.K. citizens; others only with U.S. Immigrant Visas)	Applied mathematics; probability theory and stochastic processes; atmospheric physics; chemistry and physics of propellant combustion and energetic materials; combustion research; engineering surfaces; fluid mechanics; high pressure physics; mechanics of materials; molecular dynamics; organic, physical and surface chemistry; physics; structural and materials sciences; toxicology
U.S. Army Atmospheric Sciences Laboratory (U.S. citizens only)	Aeronomy; atmospheric sciences; atmospheric transmission; electro-optics/infrared/millimeter wave propagation models; meteorological techniques and equipment; meteorology; remote sensing techniques
U.S. Army Natick Research and Development Laboratories	Biochemistry; bioengineering; biomass conversion; biophysics; food and nutrition; food sciences; food technology; microbiology; photochemistry; pollution abatement; psychology; textiles
Walter Reed Army Institute of Research	Biochemistry; communicable diseases — microbiology; endocrine and cellular physiology; immunobiology; immunology; molecular virology; neuropsychiatry; nutritional immunology; toxicology (bacterial); viral immunology

Tenure follows immediately upon termination of the NRC-NASA Resident Research Associateship. The NRC is administratively responsible for the Research Management Associates during tenure.

### Engineering Postdoctoral Research Associateship Program

This experimental program, initiated in the 1981 program year, provides for categorical awards to engineers at the National Bureau of Standards and at the Naval Research Laboratory. The objective of the program is to increase the attractiveness of postdoctoral research opportunities to engineers by providing a stipend which is more competitive with current job opportunities for engineers. In the first year of the experiment, there was a significant increase in the number of applications from engineers at the two participating laboratories. The program will be continued. It is administered in the same manner as the regular programs at those locations.

### Panels on Research Associateships at Federal Research Laboratories

#### Chemical Sciences

**Chairman** Thomas Darrah Thomas, Professor, Department of Chemistry, Oregon State University, Corvallis, Oregon 97331 (Physical Nuclear Chemistry)  
**Saul G. Cohen**, Professor, Department of Chemistry, Brandeis University, Waltham, Massachusetts 02254 (Organic Chemistry)  
**Stanley Ross Crouch**, Professor, Department of Chemistry, Michigan State University, East Lansing, Michigan 48824 (Analytical Chemistry)  
**Joseph P. Devlin**, Professor and Head, Department of Chemistry, Oklahoma State University, Stillwater, Oklahoma 74074 (Physical Chemistry)

Harlan L. Goering, Professor, Department of Chemistry, University of Wisconsin, Madison, Wisconsin 53706 (Organic Chemistry)

Juan Oro, Professor, Biochemical and Biophysical Sciences, University of Houston, Houston, Texas 77004 (Biochemical Evolution)

William H. Rivera, Professor and Chairman, Department of Chemistry, U.S. Naval Academy, Annapolis, Maryland 21402 (Analytical Chemistry)

Trudy Enzer Smith, Professor and Chairman, Department of Chemistry, Connecticut College, New London, Connecticut 06320 (Physical Chemistry)

Thomas Spencer, Professor, Department of Chemistry, Dartmouth College, Hanover, New Hampshire 03755 (Organic Chemistry)

#### Earth and Atmospheric Sciences

**Chairman** George Weatherly, Professor, Department of Oceanography, Florida State University, Tallahassee, Florida 32306 (Physical Oceanography)

John A. Cooney, Professor, Department of Physics and Atmospheric Science, Drexel University, Philadelphia, Pennsylvania 19104 (Remote Atmospheric Sensing)

Alistair B. Fraser, Professor, Department of Meteorology, Pennsylvania State University, University Park, Pennsylvania 16802 (Physical Meteorology)

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